COBHAM

EXPLORER 5075GX
Auto-Deploy Antenna System
Installation and user manual

EXPLORER 5075GX

Installation and user manual

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Safety summary

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment. Thrane & Thrane A/S assumes no liability for the customer's failure to comply with these requirements.

Microwave radiation hazards
During transmission the antenna radiates Microwave Power.This radiation may be hazardous to humans close to the antenna. During transmission, make sure that nobody gets closer than the recommended minimum safety distance.

The minimum safe distance in front of the antenna reflector is 32 m when in the focal line (a straight line between the feed horn and satellite), based on a radiation level of 10 W/m^2. No hazard exists at the back of the reflector.

WARNING! This device emits radio frequency energy. Do not place your head or other body parts between transmitting feed horn and reflector when the system is operational.

Service
User access to the interior of the antenna is not allowed. Only a technician authorized by Cobham SATCOM may perform service - failure to comply with this rule will void the warranty.

Power supply
The voltage range for the EXPLORER 5075GX is 100 – 240 VAC (nominal), 4 A, 50/60 Hz.

WARNING! Before disassembling or performing any maintenance or upgrades, unplug the unit from power source.

Do not operate in an explosive atmosphere
Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Keep away from live circuits
Operating personnel must not remove equipment covers. Component replacement and internal adjustment must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

WARNING! Be aware of pinch points while the antenna is being positioned, deployed or stowed.

Failure to comply with the rules above will void the warranty!

As per FCC §15.105: Information to the User

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Table of contents

Chapter 1 About this manual

1.1 Manual overview 1-1
1.1.1 Intended readers 1-1
1.1.2 Software version 1-1
1.1.3 Typography 1-1

1.2 Precautions 1-2

Chapter 2 Introduction

2.1 EXPLORER 5075GX system 2-1
2.1.1 Overview 2-1
2.1.2 Global Express service 2-2
2.1.3 Service activation 2-2

2.2 Description of the system components 2-3
2.2.1 Antenna positioner 2-3
2.2.2 RF assembly 2-3
2.2.3 Reflector 2-3
2.2.4 Electronics enclosure and support legs 2-4
2.2.5 Keypad and display 2-5
2.2.6 Web interface for setup and troubleshooting 2-5
2.2.7 LAN ports and WLAN 2-6
2.2.8 Power Supply 2-6

Chapter 3 Assembly & start up

3.1 What's in the box 3-1
3.1.1 To unpack 3-1
3.1.2 Initial inspection 3-2

3.2 To assemble the EXPLORER 5075GX 3-2
3.2.1 Prerequisites 3-2
3.2.2 Assembly 3-3

3.3 Start up with auto-acquisition 3-6

3.4 To stow the antenna 3-7

3.5 To disassemble and pack the antenna 3-8

Chapter 4 Setup and operation

4.1 Setup using the web interface 4-1
4.1.1 Introduction 4-1
4.1.2 To connect to the web interface 4-1
4.1.3 To configure the LAN network 4-6
4.1.4 WLAN settings 4-9
4.1.5 To deploy, stow, stop or jog the antenna 4-10
4.1.6 Navigation 4-11
4.1.7 Administration 4-12
4.1.8 To set up user permissions (guest login) 4-14
4.1.9 To import and export a system configuration 4-15
4.1.10 To reset to factory default 4-16

4.2 Keypad and display menus 4-18
4.2.1 Keypad and display 4-18
4.2.2 Navigating the menus 4-19
4.2.3 The menu tree 4-19
4.2.4 Brightness of the display 4-22

Chapter 5 Service

5.1 General support 5-1
5.1.1 Preventative maintenance 5-1
5.1.2 Help desk and diagnostics report 5-2
5.1.3 To point with the hand crank 5-3
5.1.4 Reset 5-4
5.1.5 Satellite profiles and VSAT modem profiles 5-5
5.1.6 GX Modem: One Touch Commissioning 5-7
5.1.7 Proxy server settings in your browser 5-8

5.2 Software update 5-9
5.2.1 Prerequisites 5-9
5.2.2 Software update procedure 5-9

5.3 Status signalling with LEDs and status messages 5-12
5.3.1 LEDs on the keypad of the EXPLORER 5075GX 5-12
5.3.2 Status information of the modem 5-13

5.4 To return units for repair 5-14

Appendix A Technical specifications

A.1 Antenna characteristics A-1

A.2 Product Dimensions A-3
A.2.1 Side view A-3
A.2.2 Top view A-4
A.2.3 Rear view A-5

Appendix B System messages

B.1 Event messages – overview B-1

B.2 List of events B-2

Appendix C Approvals

C.1 EN 301 489-1 V1.9.2 (2011-09) C-1

C.2 AS/NZS 22:2009 + A1:20110 ..... C-2

C.3 FCC Part 15 and ICES-003 ..... C-3

C.4 Part 15 of the FCC Rules C-4

Glossary Glossary-1

Index Index-1

About this manual

1.1 Manual overview

This manual has the following chapters:

- *Introduction*
- *Assembly & start up*
- *Setup and operation*
- *Service*

This manual has the following appendices:

- *Technical specifications*
- *System messages*
- *Approvals*

1.1.1 Intended readers

This is an installation and service manual for the EXPLORER 5075GX system, intended for users of the system and service personnel. Personnel installing or servicing the system must be properly trained and authorized by Cobham SATCOM. It is important that you observe all safety requirements listed in the beginning of this manual, and install the system according to the guidelines in this manual.

1.1.2 Software version

This manual is intended for EXPLORER 5075GX with **software version 1.49. The** GX modem (Core module) software version is shown in its own web interface.

1.1.3 Typography

In this manual, typography is used as indicated below:

Bold is used for the following purposes:

- To emphasize words.
  Example: “Do **not** touch the antenna”.
- To indicate what the user should select in the user interface.
  Example: “Select **SETTINGS** > **LAN**”.

Italic is used to emphasize the paragraph title in cross-references.

1.2 Precautions

Text marked with “Warning”, “Caution”, “Note” or “Important” show the following type of data:

- **Warning**: A Warning is an operation or maintenance procedure that, if not obeyed, can cause injury or death.
- **Caution**: A Caution is an operation or maintenance procedure that, if not obeyed, can cause damage to the equipment.
- **Note**: A Note gives information to help the reader.
- **Important**: A text marked Important gives information that is important to the user, e.g. to make the system work properly. This text does not concern damage on equipment or personal safety.

All personnel who operate equipment or do maintenance as specified in this manual must know and follow the safety precautions. The warnings and cautions that follow apply to all parts of this manual.

WARNING! Before using any material, refer to the manufacturers’ material safety data sheets for safety information. Some materials can be dangerous.

CAUTION! Do not use materials that are not equivalent to materials specified by Cobham SATCOM. Materials that are not equivalent can cause damage to the equipment.

Introduction

This chapter has the following sections:

- *EXPLORER 5075GX system*
- *Description of the system components*

2.1 EXPLORER 5075GX system

2.1.1 Overview

The EXPLORER 5075GX is an auto-deploy 75 cm fly-away antenna system, designed for operation in the Ka-band. The integrated GX modem, also known as the iDirect Core Module, commands the system to automatically acquire an operational satellite within five minutes based on the terminal's GPS location.

All of the EXPLORER series terminals are easy to install, setup, and commission by a non-specialist technician. The system has the following major components:

1. 2-axis motorized antenna positioner with IFL and BUC power cabling interface ports.
2. Reflector and RF assembly including Filter/Polarizer, BUC, and LNB.
3. Electronics enclosure containing antenna controller (ACU) and Gx modem, keyboard and display, LAN ports, support legs, and AC power adaptor.

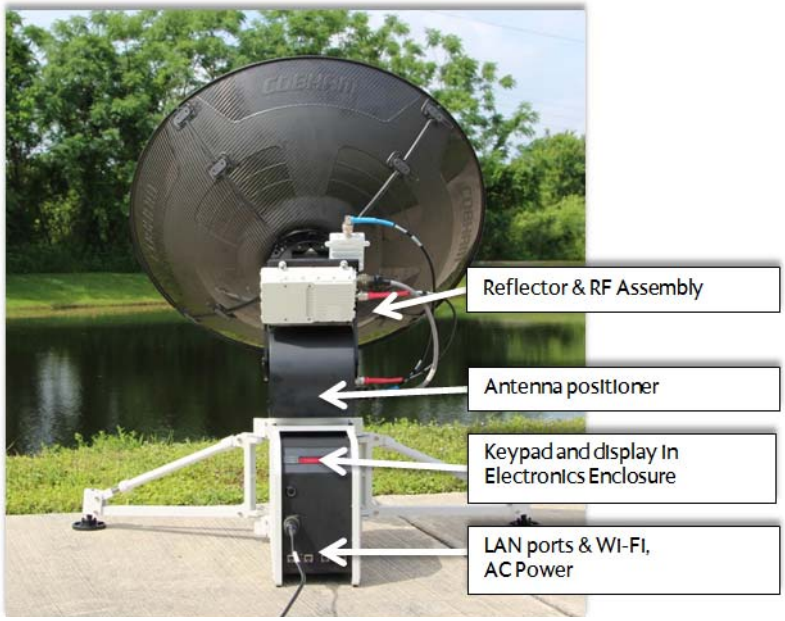


Figure 2-1: Major system components

The antenna provides a stable RF link and the modem provides IP services on the RF link. The IP services are provided via an Ethernet switch in the antenna subsystem, which is

controlled by the modem. Status information from the modem is provided via the antenna subsystem. The antenna subsystem can be monitored and software upgraded from the earth station via the GX modem.

2.1.2 Global Express service

The EXPLORER 5075GX is a unique stabilized GX antenna system operating in the Ka-band (19.2 to 30 GHz). It is used with the Global Xpress service from Inmarsat, delivering consistent high-performance download speeds of up to 50 Mbps and 5 Mbps over the uplink. The following figure shows the coverage map of the GX service at global service introduction.

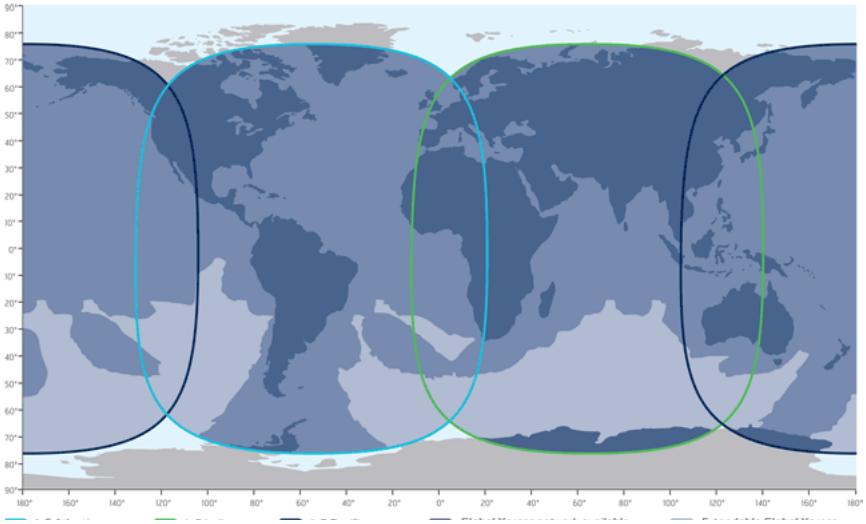


Figure 2-2: GX coverage map

2.1.3 Service activation

Before you can start using the EXPLORER 5075GX, you need to activate the system for the GX service. Contact your service provider for activation.

2.2 Description of the system components

2.2.1 Antenna positioner

The auto-deploy antenna positioner can accommodate 4˚ to 83˚ of angular movement in the elevation axis and ± 90˚ in the azimuth axis. The mechanical assemblies rely on two independent axes to allow for precise antenna pointing. A ground gradient of up to 12˚ can be accommodated with the terminal levelling features. The antenna positioner is rated at IPX5, it can stay outside in rainy weather.

2.2.2 RF assembly

The RF assembly includes the BUC, LNB, reflector hub, filter/polarizer, and feed horn. It also contains brackets that are attached to mounting blocks on the elevation arms. Once the RF assembly is mounted, the thumbscrews beneath the blocks hold the brackets securely in place. Also, the BUC and LNB are mounted closely to the filter/polarizer to reduce the need for wave guide. This design allows for quick assembly and disassembly of the RF assembly from the positioner.

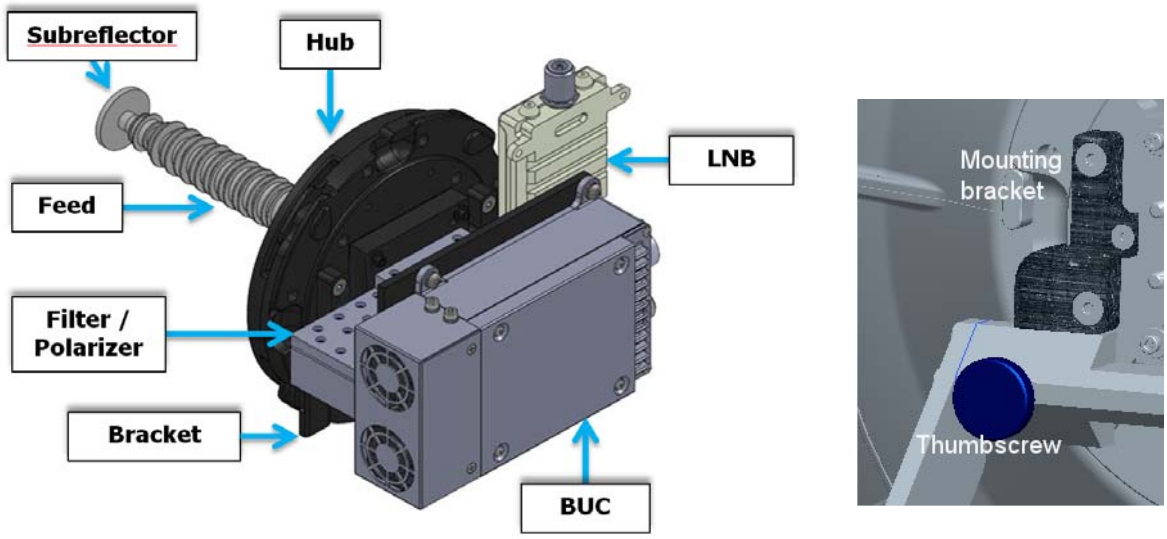


Figure 2-3: RF assembly

2.2.3 Reflector

The 75 cm reflector consists of four interchangeable panels and a center hub. The panels are made entirely of composite with the exception of the latches. The aluminum latches are used to secure the panels to the hub. Two smaller latches along the edge of the panels attach the reflector panels to each other. The reflector weighs 3 kg (8.5 lbs). The reflector

has been designed to meet wind load and thermal distortion requirements; see *Technical specifications* on page A-1 for more detail.

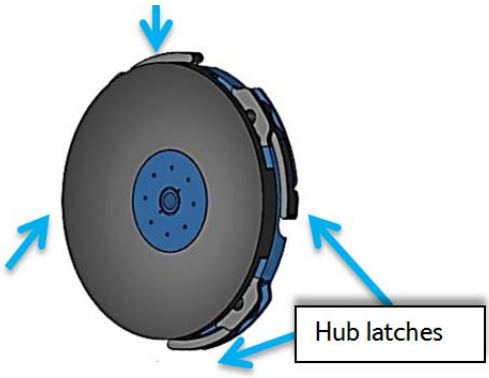


Figure 2-4: Center hub with four latches for the 4 panels

2.2.4 Electronics enclosure and support legs

The modem, Antenna Control Unit (ACU), and AC Power Supply are packaged in the IP65 electronics enclosure. An embedded keypad and display provide access to commonly used configuration, control, and system monitoring tools. Additional tools are provided in the web interface. The antenna positioner is hard-mounted to the electronics enclosure, and internal cables running between them are protected by a water-tight cable gland. Other important external features of the electronics enclosure are shown in the following figure.

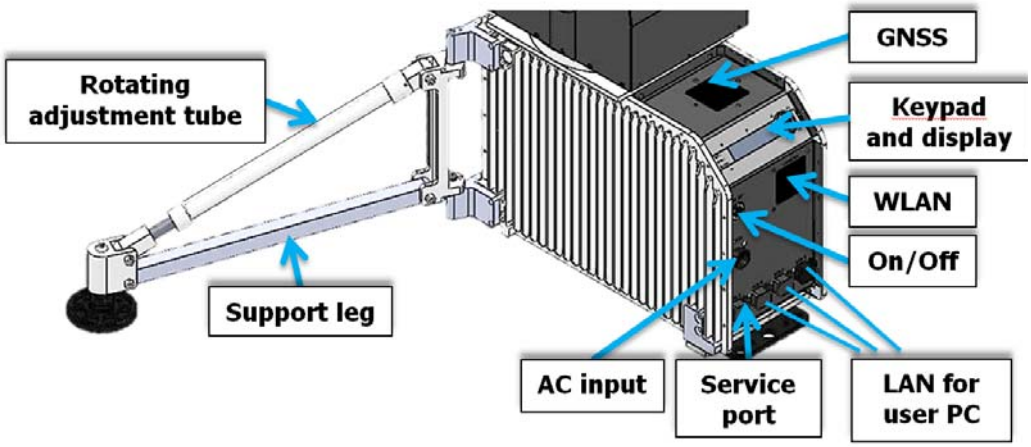


Figure 2-5: Electronics enclosure and support legs

The electronics enclosure contains numerous subcomponents including the Antenna Control Unit, GX modem, GNSS (Global Navigation Satellite System) module, sensors, WLAN module, in addition to environment-sensing technology that self-regulates system temperature and atmospheric pressure equalization. Four LAN ports are available on the electronics enclosure. LAN port 1 is used for system control via the web interface.

2.2.5 Keypad and display

Using the keypad and display you can deploy, stow and stop the antenna, including monitoring the system (warnings, errors and information). See *The menu tree* on page 4-19 for a full list of menus.

The menus show how the system has been configured. You can also see events (warnings, errors and information). Signal strength indication is rendered on the display as 7 blocks on the main display. The signal strength is also displayed as a number in the sub-menu **Manual Pointing**.

Figure 2-6: Keypad and display (detailed, example)

The display has a two line menu system. The display also supports two status lines (Upper and Lower) for compact satellite and antenna information. For a description of the LED light indicators see *LEDs on the keypad of the EXPLORER 5075GX* on page 5-12.

2.2.6 Web interface for setup and troubleshooting

To fully configure the EXPLORER 5075GX, use the built-in web interface. Installation of software is not necessary, you can use a standard Internet browser. The web interface is mainly used for first-time setup of the LAN ports, WLAN use and administrating admin and guest access rights. The web interface is useful when troubleshooting the EXPLORER 5075GX. The web interface can be accessed using WiFi. For details about network configuration see *To configure the LAN network* on page 4-6.

Figure 2-7: Web interface, DASHBOARD (example)

2.2.7 LAN ports and WLAN

The electronics enclosure has four LAN connectors (type RJ45) for connecting a PC/lap top or similar:

- LAN connector on the left-hand side (LAN 1) is used for system control via the web interface.
- Three connectors (LAN 2 to LAN 4) for user ports for Internet etc., configured by the GX modem.

The EXPLORER 5075GX has a WLAN module. Access to one of the LAN ports using WLAN must be set up in the web interface, see *To configure the LAN network* on page 4-6.

2.2.8 Power Supply

The power adaptor supplies primary power to the electronics enclosure, antenna positioner, and the BUC. Power input is specified as follows: 100-240 VAC, 4A, 50/60 Hz.

Assembly & start up

This chapter has the following sections:

- *What's in the box*
- *To assemble the EXPLORER 5075GX*
- *Start up with auto-acquisition*
- *To stow the antenna*
- *To disassemble and pack the antenna*

3.1 What's in the box

3.1.1 To unpack

The EXPLORER 5075GX antenna system is packaged into two transit cases.

- Case 1 - RF assembly and reflector
- Case 2 - Electronics enclosure and antenna positioner

Figure 3-1: 2 transit cases

Note Take care when handling the feed assembly. Do not grab the assembly by the feed horn. The feed's subreflector can be easily damaged.

Unpack the cases and check that the following items are present:

1. Antenna positioner and electronics enclosure
2. Feed assembly
3. Red (Tx) & Blue (Rx) RF cables
4. Gray BUC Power cable
5. AC Power Adaptor
6. Hand crank
7. CD with user documentation

3.1.2 Initial inspection

Inspect the cases immediately upon receipt for evidence of damage during transport. If the shipping material is severely damaged or water stained, request that the carrier's agent be present when opening the cases. Save all packing material for future use.

WARNING! To avoid electric shock, do not apply power to the system if there is any sign of shipping damage to any part of the front or rear panel or the outer cover. Read the safety summary at the front of this manual before installing or operating the system.

After unpacking the system, inspect it thoroughly for hidden damage and loose components or fittings. If the contents are incomplete, if there is mechanical damage or defect, or if the system does not work properly, notify your dealer.

3.2 To assemble the EXPLORER 5075GX

3.2.1 Prerequisites

- When operating on uneven surfaces, use the rotating adjustment tube to move the feet up and down to level the base and achieve stability.
- The terminal may be anchored to the ground to meet operational requirements in high wind conditions. For anchoring you may add extra weight to the support legs, or insert stakes through holes on the support feet. The recommended weight values to hold the terminal to the ground can be provided upon request.
- Place the EXPLORER 5075GX in North-South orientation for best performance during acquisition.
- Pay attention not to cover the GNSS (GPS, Glonass, etc.) module.
- Pay attention not to cover the WLAN module.

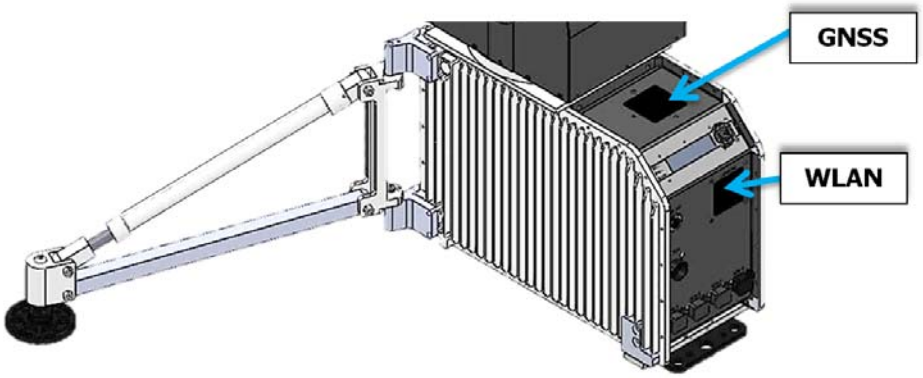


Figure 3-2: Position of GNSS and WLAN

Wind speed considerations

The antenna is designed to operate under wind speeds of 48 km/h (30 mph) gusting up to 72 km/h (45 mph) while anchored and survive winds of 100 km/h (62 mph) gusting up to 130 km/h (80 mph) while anchored. Note that the antenna may point away from the satellite in winds blowing faster than the operational wind speed limit.

Important Do not assemble or operate the terminal at wind speeds exceeding the operational wind speeds. In case the wind speeds exceed the operational wind speed limit while the antenna is already assembled or operational, bring the antenna to the stow position. In case the wind speeds exceed the survival wind speed limit while the antenna is already assembled or operational, bring the antenna manually back to the stow position, disassembled and packed.

In the EXPLORER 5075GX auto-deploy terminal, access points have been provided to access the azimuth and elevation drives. At higher wind speeds, the antenna can be manually driven to the stow position using the manual drive tool included in the transport cases. See also *To point with the hand crank* on page 5-3.

3.2.2 Assembly

The EXPLORER 5075GX antenna ships from the factory with pre-set and calibrated position feedback, limit sensing, limit switches, and motor speeds. To be fully operational, you must only deploy the antenna positioner, install the reflector, and connect the IFL and power cables between the RF assembly and the electronics enclosure. Then after power-up, the system will auto-acquire the network within five minutes.

To assemble the EXPLORER 5075GX, do as follows:

1. Unpack the electronics enclosure and place the electronics enclosure upon level ground and deploy the two support legs.

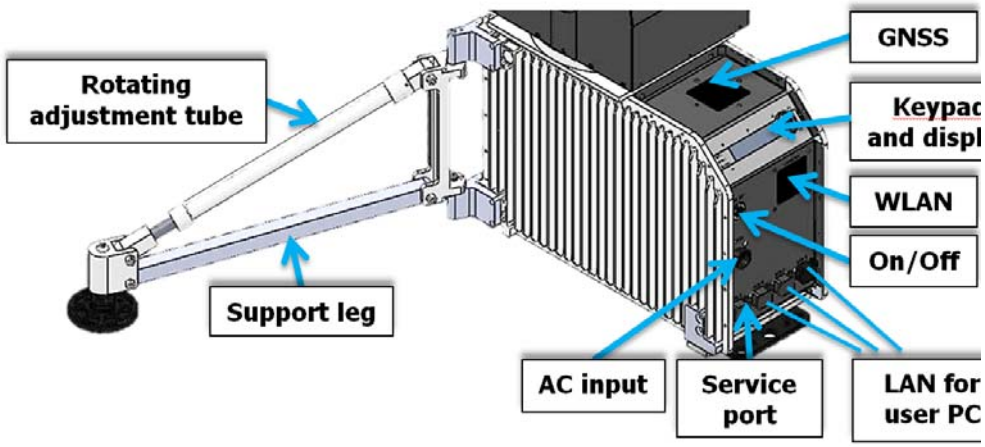


Figure 3-3: Electronics enclosure and support legs

The two support legs and support feet provide additional stability and prevent movement of the system.

2. Rotate the fine-tuning rotating adjustment tube on the support legs to move the feet up and down to level the base and achieve stability.

Figure 3-4: To adjust the support legs

3. You may have to anchor the terminal to the ground to meet operational requirements in high wind conditions. For anchoring you may add extra weight to the support legs, or insert stakes through holes on the feet.
4. Unpack the RF assembly, handle it carefully.

> **Note** Take care when handling the feed assembly. Do not grab the assembly by the feed horn. The feed's subreflector can be easily damaged.

5. Retract the thumbscrews on the mounting blocks, located on the elevation arms.
6. Mount the RF assembly by inserting the brackets down into the mounting blocks

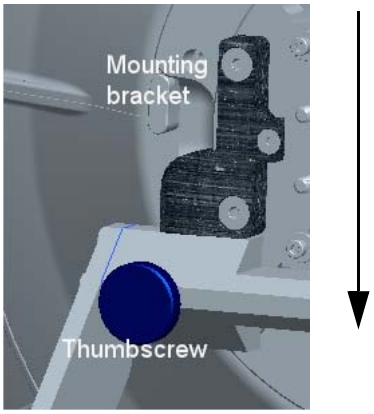


Figure 3-5: To mount the antenna positioner

7. Re-engage the thumbscrews to lock the brackets into place.
8. Unpack the four interchangeable panels.
9. Release the four locking mechanisms on the reflector hub, insert the two bottom panels and re-secure the locking mechanism on the reflector hub.

Figure 3-6: Center hub with four latches for the 4 panels

10. Latch the two bottom panels using the two smaller latches along the edge of the each panel to carefully secure the reflector panels into place.

Figure 3-7: Latches to interconnect the four panels

11. Insert and latch the two upper panels.
12. Connect the three cables as shown in the following figure:
    - BUC Power grey cable to MIL connector
    - Tx: IFL RG-6 red cable to BUC's Transmit port
    - Rx: IFL RG-6 blue cable to LNB's Receive port.

Figure 3-8: Tx, Rx RF and BUC cables

13. Connect the AC Power Adaptor to the electronics enclosure.

Figure 3-9: AC power connection

14. Use the four RJ-45 ports for making IP-data connections; there are two separate functions accessible using these ports:
    LAN1 (leftmost) for access to the web interface (setup and troubleshooting)
    LAN2 to LAN4 for Internet use etc.

Note The three standard LAN ports (LAN2 to LAN4) are for Internet and other user data traffic. The web interface can only be accessed via LAN1. Wi-fi connection must be configured, see *To configure the LAN network* on page 4-6 and *WLAN settings* on page 4-9.

3.3 Start up with auto-acquisition

The system is set to automatically point and acquire a connection.

WARNING! Be aware of pinch points while the antenna is being positioned, deployed or stowed.

To start up the antenna, do the following:

1. Press the On/Off button.

Figure 3-10: On/Off button

The antenna is fully operational when the display says **ACQUISITION OK** and the field **MDM**: in the upper status line shows **NETOK**.
If the system is not set to automatically begin pointing after power-on, then the user may deploy using two alternative methods: using the keypad and display or the web interface.

Auto-acquisition overview

The following points describe the typical auto-pointing algorithm:

1. Detect Mechanical Home Position for Az and El, which calibrates the encoders.
2. Calculate the Az/El look angles using the inputs from GNSS (GPS, Glonass etc.), Level sensors, Compass, and inclinometer.
3. Set elevation and azimuth to the calculated look angle.
4. Proceed to maximum value on the satellite signal and achieve LOCK status.

The modem then enters the network and begins passing user traffic. This pointing algorithm uses Cobham's proven TracStar technology that is currently deployed in thousands of terminals around the world.

Note As a safety precaution, the modem is automatically inhibited from transmitting until the unit has locked on to the satellite and acquired the network.

3.4 To stow the antenna

The antenna must be set into the stow position before it can be packed into the transport cases. After stowing the elevation and azimuth are zero degrees.

WARNING! Be aware of pinch points while the antenna is being positioned, deployed or stowed.

To stow the antenna using the keypad and display

1. Press **OK** to scroll to the **COMMAND** page and press **OK** again to access the page.
2. Press and ▼ until **STOW** is selected, and press **OK** to initiate the selection.
3. Wait until the status shows **STOWED**.

To stow the antenna using the web interface

1. Connect a PC to the LAN1 connector.
2. Open an Internet browser and type the default IP address: **http://192.168.0.1**. When the login screen is displayed you have verified that the connection can be established.

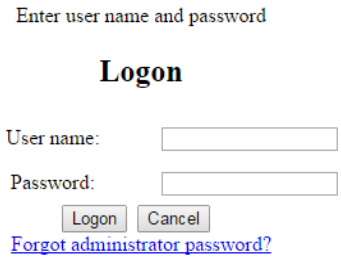


Figure 3-11: Logon screen to the web interface

3. Type in the user name **admin** and the password **1234** to access the Dashboard as an administrator.
4. From the **DASHBOARD**, navigate to the page **SERVICE > ANTENNA** and click the button **Stow**.

Figure 3-12: To stow the antenna using the web interface

5. Wait until the status on the DASHBOARD shows **Stowed**.

3.5 To disassemble and pack the antenna

1. Press the ON/OFF button on the unit to power it off.

WARNING! The electronics enclosure may get very hot (temperatures above 70° C) in hot weather conditions. Do not move the unit! Touching the hot unit may cause serious bodily harm. Wait until the unit has cooled down to temperatures below 50° C.

2. Remove all cables.
3. Dismantle the four reflector panels.
4. Remove the RF assembly from the antenna positioner.
5. Put the parts into the two transport cases.

Setup and operation

This chapter has the following sections:

- *Setup using the web interface*
- *Keypad and display menus*

4.1 Setup using the web interface

4.1.1 Introduction

Use the built-in web interface of the EXPLORER 5075GX to set up the antenna, i.e. setup of the WLAN and for service and troubleshooting. You can use a standard Internet browser.

A satellite profile with the GX Modem is already set up at the factory. No further profiles are needed.

Important

The EXPLORER 5075GX is not designed to be connected directly to the Internet. It must be located behind a dedicated network security device such as a firewall.

If any ports of the EXPLORER 5075GX are exposed to the Internet you must change the default passwords as anyone with access and malicious intent can render the EXPLORER 5075GX inoperable.

4.1.2 To connect to the web interface

To connect to the web interface do as follows:

1. Switch on the EXPLORER 5075GX system. Wait until the LEDs on the front plate show that the system is ready to be configured.
   - Power LED: Green
   - Logon LED: Off
   - Fail/Pass LED: Flashing green during power-on self test, after that steady green.
2. Connect a PC to the LAN1 connector (Service port, standard Ethernet, leftmost).

   You can configure it according to your network requirements. See *To configure the LAN network* on page 4-6 for more information.
3. Open your Internet browser and enter the IP address of the EXPLORER 5075GX: http://192.168.1.2 (default, can be read out in the display).

When the login screen is displayed you have verified that the connection to the EXPLORER 5075GX can be established. The web interface is ready for use. You can continue to configure the system.

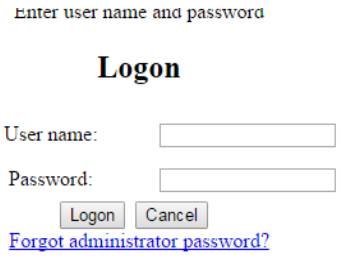


Figure 4-1: Logon screen

If you cannot establish a connection there might be problems with the Proxy server settings of your PC. See *Proxy server settings in your browser* on page 5-8 for further information.

4. Type in the user name **admin** and the password **1234** to access the **Dashboard**. There is also a guest login (user name: **guest**, password: **guest**). With this login you can protect the system from accidental changes of the configuration. A guest can only access the functions that are allowed on the page **User permissions** by an administrator. For more information see *To set up user permissions (guest login)* on page 4-14.
5. The web interface shows the **DASHBOARD** page.

Figure 4-2: Web interface: DASHBOARD

Acquisition process

The acquisition process is started automatically after power on (factory default). A satellite and modem profile has been set up at the factory. The antenna is fully operational when the display shows **ACQUISITION OK** and the field **MDM**: in the upper status line shows **NETOK**.

Topics in the web interface

Use the site map to get an overview over the existing menus and submenus. You can click on each menu in the site map to go directly to the page or display the respective submenu.

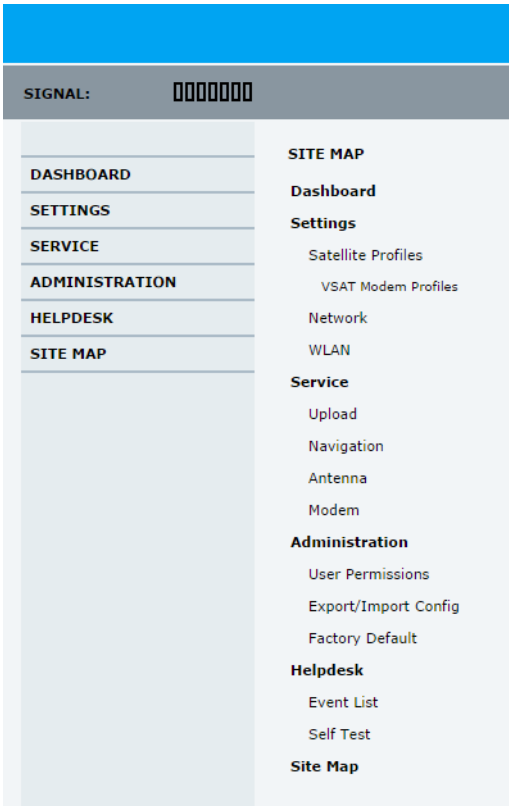


Figure 4-3: Topics in the web interface (SITE MAP)

The DASHBOARD is the first screen that is displayed when the user or administrator enters the IP address of the web interface. It shows the properties and status of the EXPLORER 5075GX.

The web interface consists of the following sections:

Figure 4-4: Web interface: DASHBOARD

1. The navigation pane holds the main menu. Clicking an item in the menu opens a submenu in the navigation pane or a new page in the contents section.
2. The signal status field shows the tracking signal strength of the antenna. The signal strength can vary during operation, depending on the current position relative to the satellite.
3. The icon bar shows icons for active events, when relevant.
4. The host name is shown on every page of the web interface. The host name is useful for identifying the system at remote login and when requesting reports from the system. To change the host name see *To configure the LAN network* on page 4-6.
5. The contents section shows the page selected in the navigation pane. This section is used for viewing or changing settings, or for performing actions.

The following icon may appear in the icon bar in the web interface:

Icon	Explanation
⚠	An event is active. Click the icon to see a list of active events. For explanations of the event messages, see *List of events* on page B-2. Note that this icon will remain in the icon bar as long as the event is active.

Table 4-1: Web interface: Event icon

To navigate the web interface

- **To expand a menu**, click the menu in the navigation pane.
- **To access status and settings**, click the relevant subject in the navigation pane or click the relevant icon in the icon bar. The status or settings are displayed in the contents section.
- **To get an overview over the submenus available**, click **SITE MAP** in the navigation pane. Click on items in the site map to go directly to the relevant location.

Note You can give access to some configuration settings for users that are not administrators. For information see *To set up user permissions (guest login)* on page 4-14.

To connect a PC

To connect a PC to the EXPLORER 5075GX do as follows:

1. Connect a PC to LAN1 port (Service port, standard Ethernet, leftmost).
   You can configure it according to your network requirements. See *To configure the LAN network* on page 4-6 for more information.
2. Open your Internet browser and enter the IP address: http://192.168.1.2 (default).

Information fields on the Dashboard

DASHBOARD	Description
System status	Current status of the EXPLORER 5075GX. **Examples**: **Antenna software upload** **Antenna POST** (Power-On Self Test) **Ready** (waiting for data from the modem or no satellite profile selected) **Deployed idle** (antenna ready) **Homing antenna** (verifying antenna position) **Early acquisition** (acquiring the satellite signal, no modem communication yet)) **Acquiring signal** (acquiring the satellite signal, with modem communication) **Acquisition ok** (signal from the GX satellite acquired) **Safe mode** (error, followed by an error description)
GPS position	Current position, reported by the GNSS module
Satellite profile	Name of the currently active satellite profile.
Satellite position	Position of the satellite selected in Satellite profile.
Azimuth	Current value for azimuth.
Elevation	Current value for elevation.
RX RF frequency	Ka band receiving frequency, auto-selected by modem

Table 4-2: Web interface: DASHBOARD

DASHBOARD	Description
Tuner signal strength	Current tuner signal strength
Tuner mode	GSC (GX) or Narrowband
Tracking RF frequency	Current RF tracking frequency
Antenna TX allowed	Not allowed or Allowed
Modem RX status	Not locked or Locked
ACU part name, Antenna part name, ACU serial number, Antenna serial number, Software version	Part names, serial numbers for ACU and antenna, software version of the EXPLORER 5075GX.

Table 4-2: Web interface: DASHBOARD (Continued)

4.1.3 To configure the LAN network

On this page you can enter a host name. The host name helps identifying the EXPLORER 5075GX system. The EXPLORER 5075GX has four 10/100 Mbit Ethernet ports labelled LAN 1, 2, 3 and 4. LAN1 is the service port. LAN2, LAN3 and LAN4 are controlled by the GX modem.

Important The EXPLORER 5075GX system is not designed to be connected directly to the Internet. It must be located behind a dedicated network security device such as a firewall. If any ports of the EXPLORER 5075GX are exposed to the Internet you must change the default passwords as anyone with access and malicious intent can render the EXPLORER 5075GX inoperable.

To configure the LAN network go to **SETTINGS > Network**.

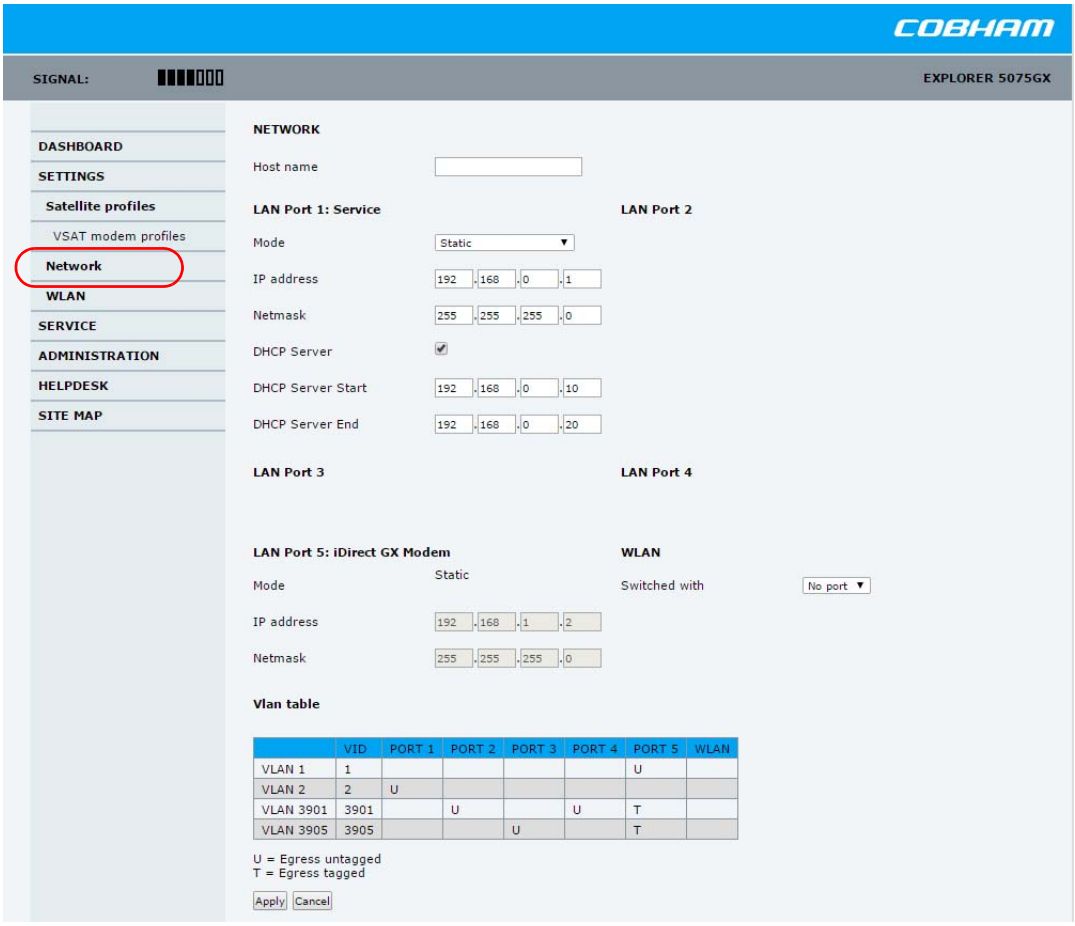


Figure 4-5: Web interface: SETTINGS, Network (default settings)

Important | Make sure that the networks do not use IP address ranges that overlap.

Make the necessary changes on this page and click **Apply**.

Sections	Preferred use
NETWORK Host name	The host name is used for identifying the EXPLORER 5075GX. The default host name is acu. You can change the name. Letters (a-z), digits (0-9) and hyphen (-) are allowed as legal characters. Note: The host name must start with a letter.
LAN Port 1	LAN port 1 is dedicated as the service port. By default this port has the IP address http://192.168.1.2; the current value can be displayed in the EXPLORER 5075GX display. The service port has 3 modes: • **Static** (default). • **DHCP client**. Used when the antenna is on a local network. • **Switched with port 5**. Used to access the GX modem. This LAN is internal with static IP configuration (192.168.1.2).

Table 4-3: Setup of LAN network

Sections	Preferred use
LAN Port 2, 3 and 4	User data ports, configured automatically by the modem. The VLAN table shows this configuration.
LAN Port 5	No connector, only internal connection.This network is connected to the modem (iDirect GX Modem). It is set to static IP.
WLAN	The wireless port can be connected to one of the other ports (service port or one of the user data ports). Set here which of the ports 1 to 5 you want to access with WiFi. If LAN Port 1 is selected, you must set it to a static IP address and select DHCP server.

Table 4-3: Setup of LAN network (Continued)

Static IP or DHCP Client

If you select **DHCP client** the network IP address and sub-net mask must be provided by a DHCP server on that network. If you select **Static IP** address you must specify a unique IP address and a sub-net mask.

DHCP Server Settings.

On **LAN Port 1**: **Service** you can choose to run a DHCP server. Select the check box **DHCP Server**. The DHCP server settings are only displayed and can be selected when the port mode is set to **Static**, otherwise the DHCP server settings are not shown.

The DHCP start and end addresses must be on the same network as the port's static IP.

VLAN port membership table

The VLAN port membership table is configured by the modem. The table is useful when troubleshooting.

4.1.4 WLAN settings

To set up the WLAN access point, do as follows:

1. Select **SETTINGS > WLAN** from the left navigation pane.

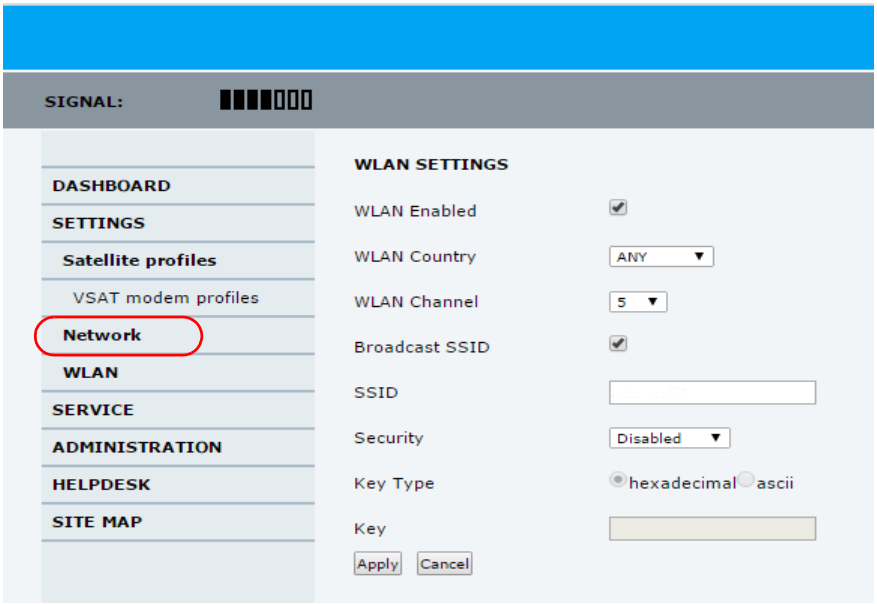


Figure 4-6: Web interface: SETTINGS > WLAN

2. Enable or disable the WLAN (default: **Disabled**).
3. Select the **Country** for your present location.
4. **WLAN channel** can be changed, channels available depend on the setting for **Country**.
5. For **Broadcast SSID**, select **Enabled** (default) or **Disabled**.
   Enabled: WLAN access point is shown to other users.
   Disabled: WLAN access point is hidden.
6. Type in the **SSID** of your choice or accept the default SSID, which is **Cobham**. The SSID is the name of the wireless local area network. It is a text with maximum 32 characters.
7. Select the **Security** standard. Select one of the following encryption standards:
   - Disabled (default)
   - WEP-64, enter the encryption key in hexadecimal format.
   - WEP-128, enter the encryption key in hexadecimal format.
   - WPA-PSK, enter the encryption key in hexadecimal or text format.
   - WPA2-PSK, enter the encryption key in hexadecimal or text format.
8. Type in the **Encryption key** for the selected Security standard. This is not applicable if you have selected **Security mode None**.
9. Click **Apply**.

4.1.5 To deploy, stow, stop or jog the antenna

On this page you can deploy, stow or stop the antenna.

- **Deploy**: Prepare the antenna for pointing after it has been stowed, stopped or jogged.
- **Stow**: Stow the antenna before disassembly.
- **Stop**: Stop the antenna immediately.
- **Jog**: Move the antenna in azimuth and elevation.

There is also a reset button for resetting the azimuth and elevation offset. An offset of 0 corresponds to the current position.

With keypad and display

1. Press **OK** to scroll to the **Command** page and press **OK** again to access page.
2. Press ▼ until **Deploy** is selected, and press **OK** to initiate the selection.
   What to expect during deployment:
   The antenna system starts up and goes through a brief initialization procedure:
   POWERING UP
   ANTENNA POST
   MANUAL POINTING
   ACQUISITION OK

With the web interface

1. Connect a PC to the LAN1 connector.
2. Open an Internet browser and type the default IP address: **http://192.168.0.1**, user name **admin** and the password **1234**.
3. From the **DASHBOARD**, go to the page **SERVICE > ANTENNA**.

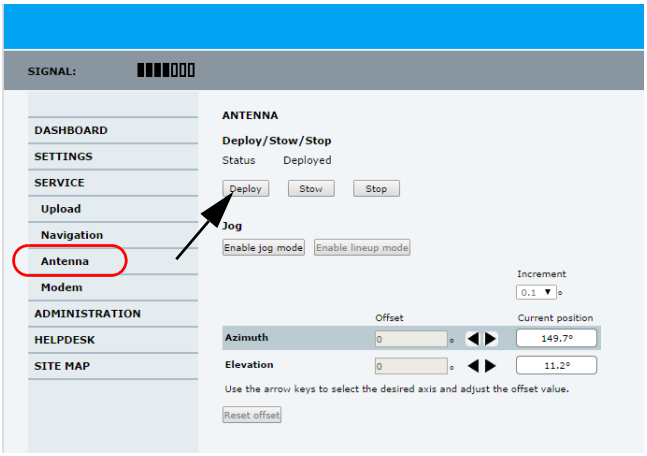


Figure 4-7: Web interface: SERVICE > Antenna, Deploy

4. Click the button **Deploy**, **Stow** or **Stop**.
5. To jog the antenna click **Enable jog mode**. Homing must be finished.

6. Click the arrow buttons for Azimuth or Elevation to change the offset. The current position is shown on the screen.

Enable line up mode is only used during troubleshooting.

4.1.6 Navigation

On this page you can enter a fixed position or a fixed base heading.

Do as follows:

1. Select **SERVICE > Navigation** from the left navigation pane.

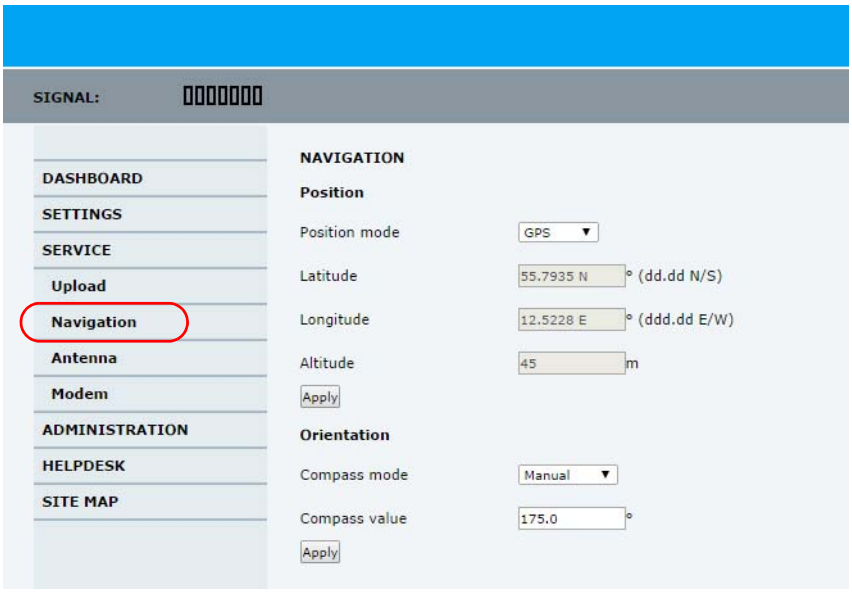


Figure 4-8: Web interface: SERVICE > Navigation

2. Set the **Position** and **Orientation**:

Item	Description
Position mode	**GPS** - GNSS module is used for current position (default). **Manual** - enter values from other position source. (Accuracy should be better than 50 m.)
Compass mode	**Automatic** - magnetic heading is used (default). **Manual** - enter a value for the direction of the EXPLORER 5075GX as an alternative to the magnetic heading (0 to 360 degrees, precision ±20˚).

Table 4-4: Web interface: SERVICE > Navigation

3. Click **Apply** to save the new settings.

4.1.7 Administration

In this section of the web interface you can configure the following administrative settings:

- *To access the administration settings (user name, password)*
- *To set up user permissions (guest login)*
- *To import and export a system configuration*
- *To reset to factory default*

You can logon as an administrator or as guest (user name: guest, password: guest). You can allow or deny users that are not administrators (user name: guest, password: guest) access to certain functions and make these pages read-only, see more in *To set up user permissions (guest login)* on page 4-14.

To access the administration settings (user name, password)

The Administration settings require an Administration user name and password. To log on as administrator, do as follows:

1. Select **ADMINISTRATION** from the left navigation pane.
2. Enter the Administration user name and password.
   The default user name is **admin** and the default password is **1234**.

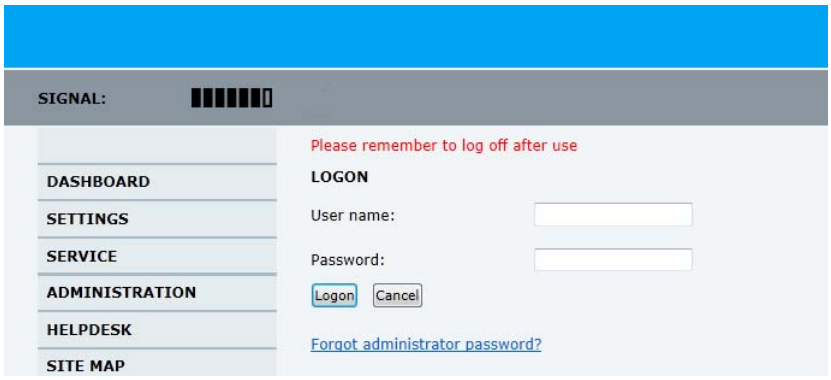


Figure 4-9: Web interface: Administration

3. Click **Logon**.
   The Administration page is now updated to let you change the user name and password or log off Administration.

To change the administrator password, do as follows:

1. After entering the administrator user name and password in the **ADMINISTRATION** page, locate the section **Change administrator logon**.

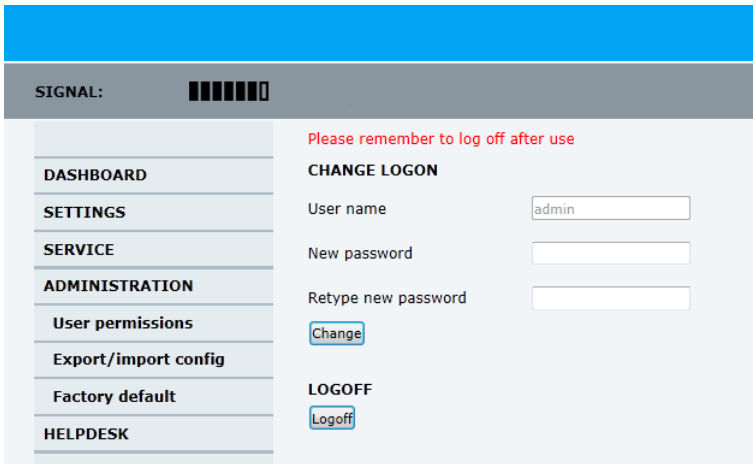


Figure 4-10: Web interface: Administration, change administrator logon and password

2. Type in the new password and retype it on the next line.
3. Click **Change**. At the next logon the new password is required.

To reset the administrator password, do as follows:

1. Contact your service partner for a reset code. Report the serial number of the ACU. You find it in the **Dashboard**, **ACU serial number**.
2. Click the link **Forgot administrator password?** at the bottom of the **ADMINISTRATOR LOGON** page (see Figure 4-9: *Web interface: Administration*).

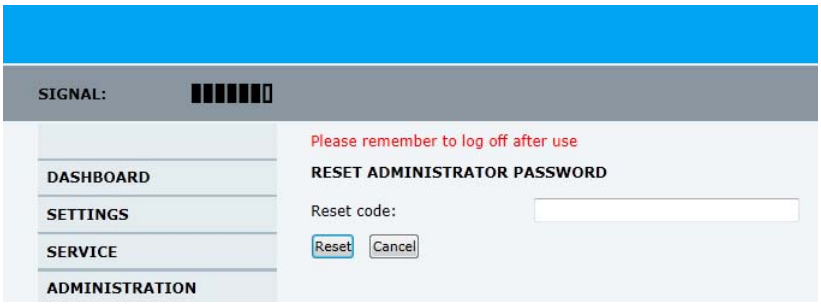


Figure 4-11: Web interface: ADMINISTRATION, Reset administrator password

3. Type in the reset code obtained from your service partner and click **Reset**.
4. Type in the user name **admin**, the default password **1234** and click **Logon**.

To log off administration

If you have not entered anything for 30 minutes under **ADMINISTRATION**, you are logged off automatically. To log off manually, click **Logoff** in the **ADMINISTRATION** page.

4.1.8 To set up user permissions (guest login)

You can manage user access to certain functions of the EXPLORER 5075GX system. You can allow or deny users that are not administrators (user name: guest, password: guest) access to certain functions and make these pages read-only. This is useful if you want to protect the system against unintended changes or tampering of the system.

Important Study this screen thoroughly and decide which areas of the EXPLORER 5075GX system you want to give non-administrator users (user name: guest) access to.

To set up the user permissions for guest users, do as follows:

1. From the left navigation pane, select **ADMINISTRATION > User permissions**.

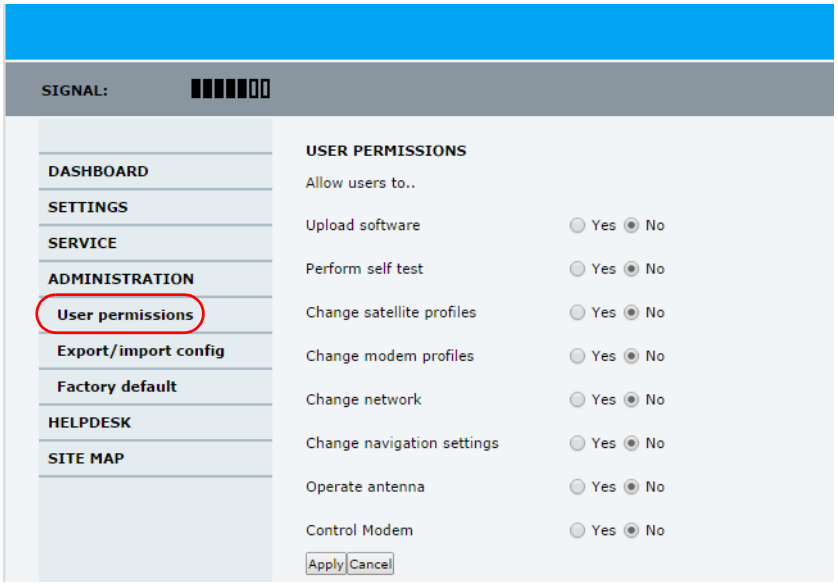


Figure 4-12: Web interface: ADMINISTRATION, User permissions

2. For each item under **ALLOW USERS TO**: select
   - **Yes** to allow the **guest user** access
   - **No** to block the **guest user** access to the settings. Then the pages are read-only, changes cannot be made by the guest user.

   Change network: Change IP configuration of the LAN connectors. For further information see *To configure the LAN network* on page 4-6.
   Operate antenna: Allow to deploy, stow, stop or jog the antenna using the web interface.
   Control Modem: Allow to reset or power cycle the GX modem.
3. Click **Apply**.

The settings to which access is denied are now greyed out for the guest user.

4.1.9 To import and export a system configuration

If you need to reuse a configuration in another EXPLORER 5075GX, you can save the current configuration to a file, which can then be loaded into another EXPLORER 5075GX. You can also use this feature for backup purposes.

Important Load and save configurations can only be done with the same software version in the units involved.

The configuration file contains all the settings you have entered during system setup: satellite profiles, VSAT modem profiles, LAN setup, user permissions etc.

To save a configuration to a file, do as follows:

1. Select **ADMINISTRATION > Export/import config**.

Figure 4-13: Web interface: Administration, Export/import configuration

2. Click the button **Export**. Follow the download instructions on the screen. You can use this configuration file for upload into another EXPLORER 5075GX,

To load a configuration from a file, do as follows:

1. Select **ADMINISTRATION > Export/import config**.
2. Click the button **Browse** and locate the configuration file (.cfg file) you want to upload. Then click the button **Open**.
3. In the web interface click the button **Upload**.

To clone a system configuration, do as follows:

1. Reset to factory default, see the following section for details.
2. Import a configuration from file, see section above.

4.1.10 To reset to factory default

When resetting EXPLORER 5075GX to factory default, the following settings are deleted or reset to factory default:

- All added satellite profiles
- All added VSAT modem profiles
- Changes in the network setup
- User permissions
- Display: brightness setting

To reset to factory default settings, do as follows:

1. From the left navigation pane, select **ADMINISTRATION > Factory default**.

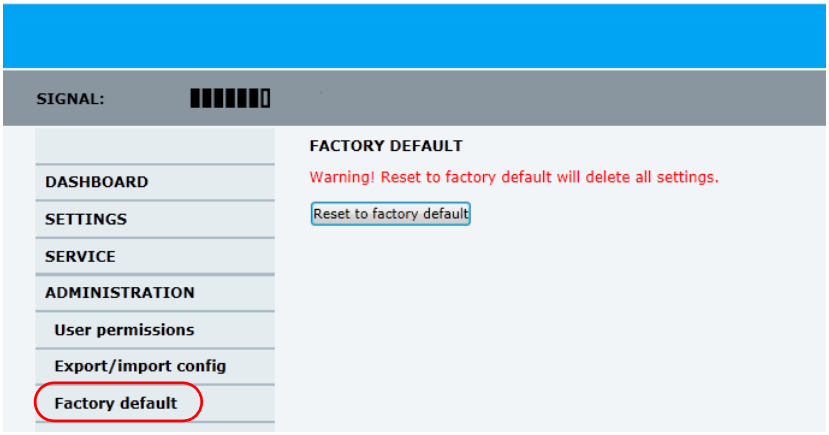


Figure 4-14: Web interface: ADMINISTRATION > Factory default

2. Click **Reset to factory default**.

Note Calibration data for azimuth and cable calibration are not reset during factory default.

Reset to factory default - integrated GX modem

CAUTION! Administrators only. Close this page for guest users, see *To set up user permissions (guest login)* on page 4-14.

To reset the integrated modem to factory default, do as follows:

1. From the left navigation pane, select **SERVICE > Modem**.

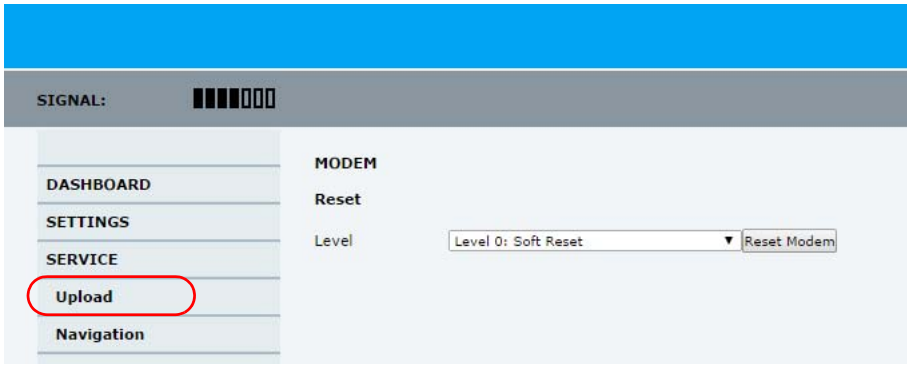


Figure 4-15: Web interface: SERVICE > Modem, Factory default

2. In the drop-down box select one of the three options:
   - Level 0 – Power cycle of the GX modem
   - **Do not use**: Diagnostic Test Mode – Only connection to the GX modem is the serial RS-232 interface, all other connections are shut down.
   - **Do not use**: Default Factory Configuration – The GX modem stops working. New files must be loaded into the GX modem.

4.2 Keypad and display menus

4.2.1 Keypad and display

In the display you can see the current state of the system. You can also deploy, stow and stop the antenna, see events (warnings, errors and information) and how the system has been configured. Use the keypad to navigate through the menu tree.

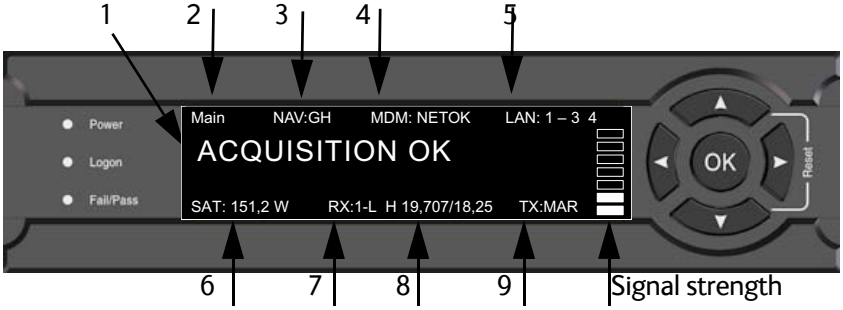


Figure 4-16: Display and keypad of the ACU (example)

1. Current status of the EXPLORER 5075GX (examples):
   ANTENNA SOFTWARE UPLOAD
   ANTENNA POST (Power-On Self Test)
   READY (waiting for data from the modem or no satellite profile selected)
   DEPLOYED IDLE (antenna ready)
   Homing antenna (verifying antenna position)
   EARLY ACQUISITION (acquiring the satellite signal, no modem communication yet))
   ACQUIRING SIGNAL (acquiring the satellite signal, with modem communication)
   ACQUISITION OK (signal from the GX satellite acquired)
   SAFE MODE (error, followed by an error description)
2. Current menu, see *The menu tree* on page 4-19.
3. **NAV**: Navigational information
   First letter: **G** (Valid position signal received from the GNSPS module) or **g** (No valid GNSS fix)
   Second letter: **H** (Valid heading data) or **h** (No valid heading data).
4. **MDM**: Current status of the modem: **TEST**, **ERROR**, **READY**, **INIT**, **RXOK**, **ACQ**, **NETOK**, **RESET**, **OFF**
5. **LAN**: LAN connectors used, **1**, **2**, **3**, **4**, –.
6. **SAT**: Longitude, satellite position of the currently active satellite profile.
7. **RX**:
   1 (Rx1 Lock, **-** or **1**),
   - (Rx2 Lock, **-** or **2**),
   L (RX polarisation of currently active satellite profile: **L** (left-hand) **R** (right-hand).
8. RF tracking frequency in GHz and LNB LO Frequency.
9. **TX**: <Modem TX> <ADU TX> <TX pol>
   <Modem TX> = [m,M]
   <ADU TX> = [a,A]
   <Tx pol>=[-,L,R]

After 1 hour the display is dimmed to lowest intensity. Press any key to light up the display.

4.2.2 Navigating the menus

Use the keypad to navigate the menus.

- Press **OK** or ▶ to select a menu item.
- Use the arrow keys ▲ and ▼ to go through the menu items or enter a number, digit by digit.
- Use the arrow keys ◀ and ▶ to go through the settings and move from one digit to the next.
- Press **OK** to select a setting.
- Press ◀ again to move one level up. If applicable, confirm to store the new setting by pressing **OK**.

4.2.3 The menu tree

In the menu tree you can see how the system has been configured. To enter satellite information directly, use a connected PC and the web interface.

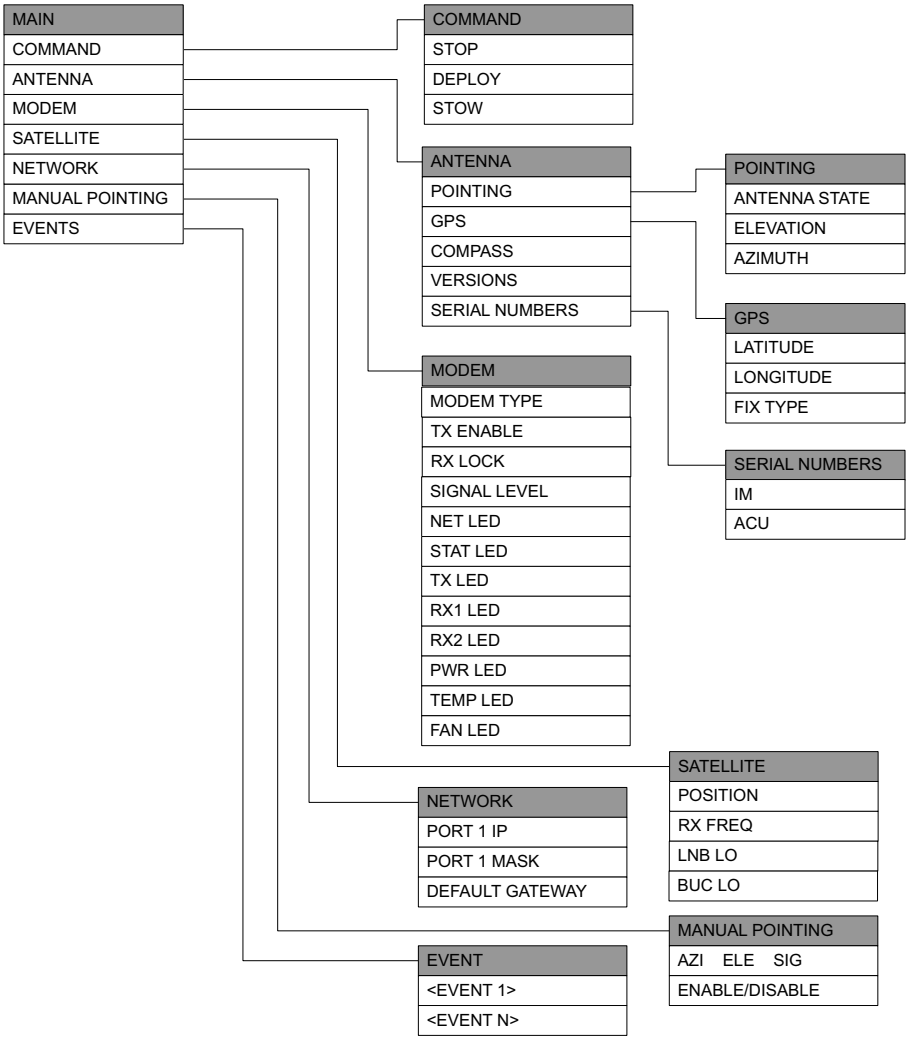


Figure 4-17: Menu tree in the display

Top-level menu

Top-level menu	Description
MAIN	View with current status of the EXPLORER 5075GX. Example when logged on to the satellite: This view is displayed after a time out of 10 minutes. Press any key (except left arrow) to enter the menu at **MAIN**. New events are shown in this display. If an event is displayed, press **OK** to jump directly to the menu **EVENTS** for viewing the currently active events.
COMMAND	You can stow, deploy or stop the antenna in this menu.
ANTENNA	Shows the current antenna parameters, position, software version and serial numbers of the ADU and ACU.
MODEM	Modem information, including modem LED status
SATELLITE	Current satellite information. This information is selected using the web interface.
NETWORK	Shows the IP addresses and netmasks of the LAN connectors and the management mask.
MANUAL POINTING	To enable and disable manual pointing.
EVENTS	View system events. Active events are shown as: X ACTIVE EVENTS in the **MAIN** display. Press **OK** to update the list.

Table 4-5: Top-level menus

Menu descriptions

COMMAND	Description
STOP	Stops the antenna from moving
DEPLOY	Starts the deployment procedure
STOW	Moves the antenna into the position for packing

Table 4-6: COMMAND menu

ANTENNA	Description
POINTING	ANTENNA STATE: Current state of the antenna, e.g. TRACKING ELEVATION: Current elevation angle of the antenna AZIMUTH: Current azimuth of the antenna, with reference to North
GPS	LATITUDE: current latitude, read from GNSS module. LONGITUDE: current longitude, read from GNSS module. FIX TYPE: 2D or 3D or NONE
COMPASS	Current orientation of the antenna.

Table 4-7: ANTENNA menu

ANTENNA	Description
VERSIONS	Current software version.
SERIAL NUMBERS	Serial number of the EXPLORER 5075GX

Table 4-7: ANTENNA menu (Continued)

MODEM	Description
MODEM TYPE	Current modem type.
TX ENABLE	On or off, information delivered by the connected GX modem.
RX LOCK	On or off, information delivered by the connected GX modem.
SIGNAL LEVEL	Current input signal level from the GX modem, in dB.
NET LED	Modem status. Steady or flashing green/yellow/red, OFF
STAT LED	
TX LED	
RX1 LED	
RX2 LED	
PWR LED	
TEMP LED	
FAN LED	

Table 4-8: MODEM menu

SATELLITE	Description
POSITION	Current satellite position.
RX FREQ	Current RX frequency.
LNB LO	LNB LO frequency
BUC LO	BUC LO frequency

Table 4-9: SATELLITE menu

NETWORK	Description
PORT1 IP	Current IP address for LAN1 (service port).
PORT1 MASK	Current netmask for LAN1.
DEFAULT GATEWAY	Current default gateway.

Table 4-10: NETWORK menu

MANUAL POINTING	Description
AZI ELE	Current values for azimuth and elevation
ENABLE/DISABLE	Current status: enabled or disabled

Table 4-11: MANUAL POINTING menu

EVENT	Description
<EVENT>	In this menu all active events are listed. Use ▲ and ▼ to go through the active events. Events can be of the type WARNING or ERROR. If a new event occurs or there is a change in the event list while you are in the **EVENTS** menu, a * is shown in the upper left corner of the display, next to the menu name. Press **OK** to update the EVENTS list, the * will be removed. A **>** means the event text is longer than the display. Press **>** to see the remaining text.

Table 4-12: EVENTS menu

Example: **EVENT 1/4***: This is the first event out of a list of 4 and there has been a change in the list. EVENT 1/4 will always be shown, the * indicates that there has been a change.

4.2.4 Brightness of the display

To adjust the brightness do the following:

1. Press and hold **OK** for a short moment until BRIGHTNESS XXX% is displayed (XXX is the current brightness value).
2. Hold **OK** + press ▲ to brighten or ▼ to darken display.
3. Release OK to leave the brightness menu.

Service

This chapter has the following sections:

- *General support*
- *Software update*
- *Status signalling with LEDs and status messages*
- *To return units for repair*

5.1 General support

Contact for support

If this manual does not provide the remedies to solve your problem, contact your service provider.

5.1.1 Preventative maintenance

The EXPLORER 5075GX is constructed to require a minimum amount of regular maintenance. The following checks should be undertaken on a regular basis:

- Inspect the reflector front surface for physical damage including chips and cracks. Any substantial damage can affect antenna performance and may require a portion of the reflector to be replaced.
- Check the feed horn for cracks or damage.
- Use low-pressure washing and soft scrubbing to rinse off grit and reduce wear.

5.1.2 Help desk and diagnostics report

During the installation you can enter the support contact for this installation.

1. To access the Help desk, select **HELPDESK** from the left navigation pane.

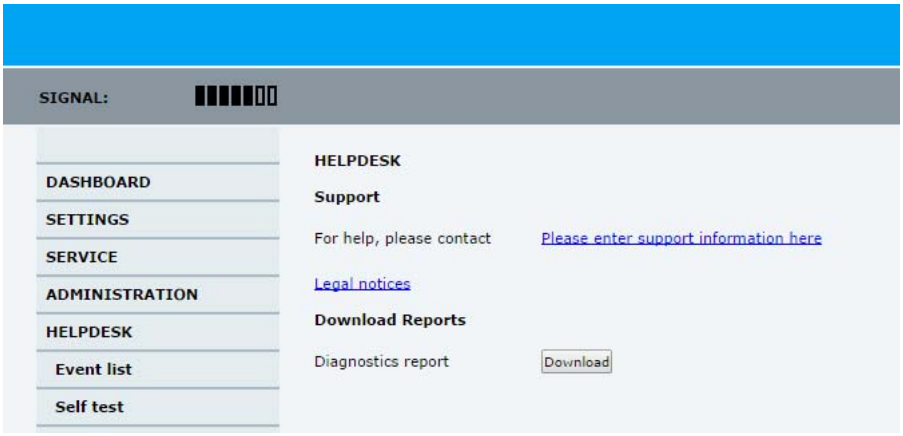


Figure 5-1: Web interface: HELPDESK

2. Click the link, enter support contact information and click **Apply**.

At **Legal notice** the licence text for the source code of the parts of the EXPLORER 5075GX software that fall under free and open source software can be displayed.

You can download a diagnostic report. To generate a diagnostics report do as follows:

1. In the section **Download Reports** click the button **Download**. The report (txt file) is downloaded to your computer.

The Diagnostics report contains information relevant for the service personnel during troubleshooting. It is also useful documentation of the current setup. It contains all parameters set during configuration. The main sections are:

- Software
- System
- Hardware
- Setup - System data
- Network - LAN Configuration
- Modems
- Satellites - Satellites profiles
- Operation - Current modem and navigation parameters.
- POST - results of the Power-On-Self-Test
- Active Events - lists the currently active events
- Events - List of all cleared events.
- System log

Event list

When an event is registered, the web interface shows an event icon ⚠ in the icon bar as long as the event is active. The ACU display shows also active events. To view the event list with active events, click the event icon from the icon bar at the top of the web interface, or select **HELPDESK > Event list** from the left navigation pane.

The **Event list** page shows a detailed list of active events and notifications including the time of the first occurrence, ID and severity of the event message, and a short text describing the error. Active events are cleared from the event list when the error is cleared. They are moved to the section **Notifications** and are displayed for 24 hours. All entries in the section **Notifications** are cleared automatically after 24 hours and after restart of the system. For a list of all events with description, error code (ID), explanation and remedy see *System messages* on page B-1.

Self test

You can start a self test of the EXPLORER 5075GX ADU and ACU.

1. Click **Self test** in the **HELPDESK** page.
2. Click the menu item **Self test**.

Important Warning! The EXPLORER 5075GX will reboot to perform the self test. Rebooting the ACU will terminate all existing connections.

5.1.3 To point with the hand crank

If auto-acquisition is not possible you can use a hand crank to bring the antenna into the correct position. Do as follows:

1. Press ▼ on the keypad to go to the page **MANUAL POINTING** and select **ENABLE**. This page sends a pointing request to the terminal.

Note Using the inputs from GNSS, the system calculates the azimuth and elevation look angles for the target GX satellite.

2. Press ▼ until **ENABLE/DISABLE** is selected, and select **ENABLE**, press **OK** to initiate the selection.
   The antenna must be in the state MANUAL POINTING. Else, deploy and wait until this state is shown.
3. Use the included hand-crank for axis movement in the event of a loss in power.
   Access to the azimuth and elevation axis ports is located at the lower rear side of the unit.
4. Insert the Unbraco key (5 mm) into the holes for azimuth and elevation. One turn of the key is equal to 0.1 degree.

5. Adjust the elevation, based on the ACU's calculated elevation look angle. The terminal's target and current elevation axis angles must match each other as closely as possible.

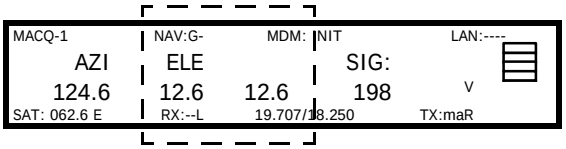


Figure 5-2: Target and current elevation axis angles

6. The operator uses the azimuth adjust to detect the GX signal, which is displayed in the display. Use a compass tool, if needed.

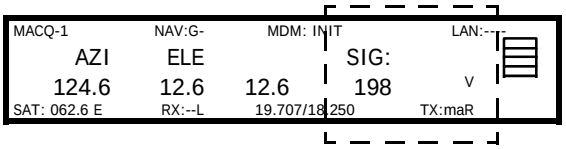


Figure 5-3: Current signal strength

Note The best method to manually locate a satellite is typically to sweep in azimuth slowly back and forth until you peak on the signal.

7. Adjust until the strongest possible signal strength is achieved. For GSC mode: An L displayed after the signal strength means that the signal is in lock.

5.1.4 Reset

To reset the antenna do the following:

1. Press and hold ▲ and ▼ until the ACU display shuts down and the antenna reboots.

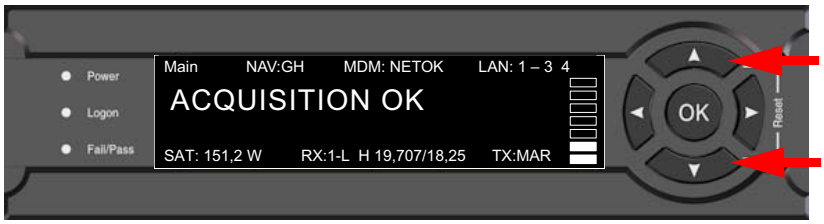


Figure 5-4: To reset the system

2. Wait until the antenna has rebooted and is operational again. The last active satellite profile will be used.

To reset the GX modem to factory defaults use the web interface. See *Reset to factory default - integrated GX modem* on page 4-17.

Reset to factory defaults using the web interface

You can reset the EXPLORER 5075GX to factory defaults. See *To reset to factory default* on page 4-16.

Important Warning! Reset to factory default will delete all settings, including satellite and VSAT modem profiles, network setup, user permissions and ACU display brightness settings.

You can reset the GX modem to factory defaults. See *Reset to factory default - integrated GX modem* on page 4-17.

5.1.5 Satellite profiles and VSAT modem profiles

Satellite profiles

A satellite profile with the GX Modem is already setup at the factory. You may add a satellite profile with the generic modem for troubleshooting purposes. This is done on the page **Satellite profiles**.

Satellite profiles – New entry and Edit

Figure 5-5: Web interface: SETTINGS - list of satellite profiles (example)

Each satellite profile has one assigned VSAT modem profile.

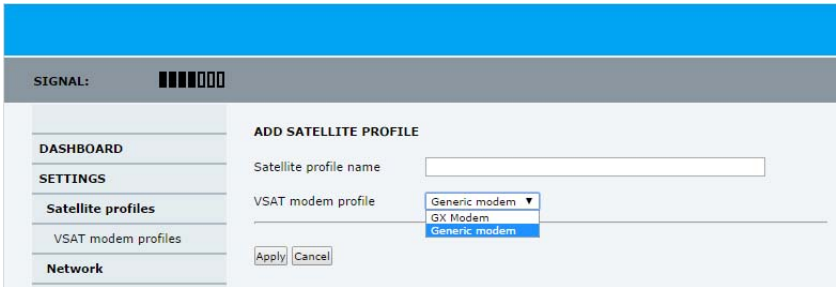


Figure 5-6: Web interface: SETTINGS, Satellite profiles — new entry (example)

To add or edit a satellite profile, do as follows:

1. Go to **SETTINGS or Satellite profiles** and click **Edit** or **New entry**.
2. Enter or edit the Satellite profile name.
3. Select a VSAT modem profile. The page automatically displays the parameters available for the selected VSAT modem profile. For instructions how to add a VSAT modem profile see *VSAT modem profile – New entry and Edit* on page 5-6.
4. Enter the data for the satellite, if any. For satellite data see www.lyngsat.com.

- **FCC (FCC §25.205)**: 5 degrees

5. Click **Apply** to save the settings for the satellite profile.

VSAT modem profiles

On the page **VSAT modem profiles** you create, edit or delete VSAT modem profiles. The VSAT modem profile GX Modem is already set up at the factory. It is useful for troubleshooting to create a VSAT modem profile with the Generic modem.

VSAT modem profile – New entry and Edit

To add or edit a VSAT modem profile, do as follows:

1. Go to **SETTINGS** > **VSAT modem profiles** and click **New entry** or **Edit**. The supported VSAT modem profiles are listed in the drop-down list **VSAT modem**.

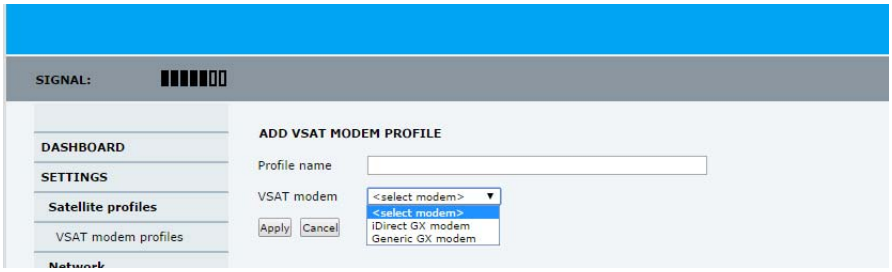


Figure 5-7: Web interface: SETTINGS, VSAT modem profile – supported modems

2. Fill in a VSAT modem profile name of your own choice.
3. Select the **Generic GX modem** (for troubleshooting) from the drop down list.
4. Click **Apply** to add the new profile to the list of VSAT modem profiles or to accept the edits.

For a generic modem you enter all parameters in the satellite profile.

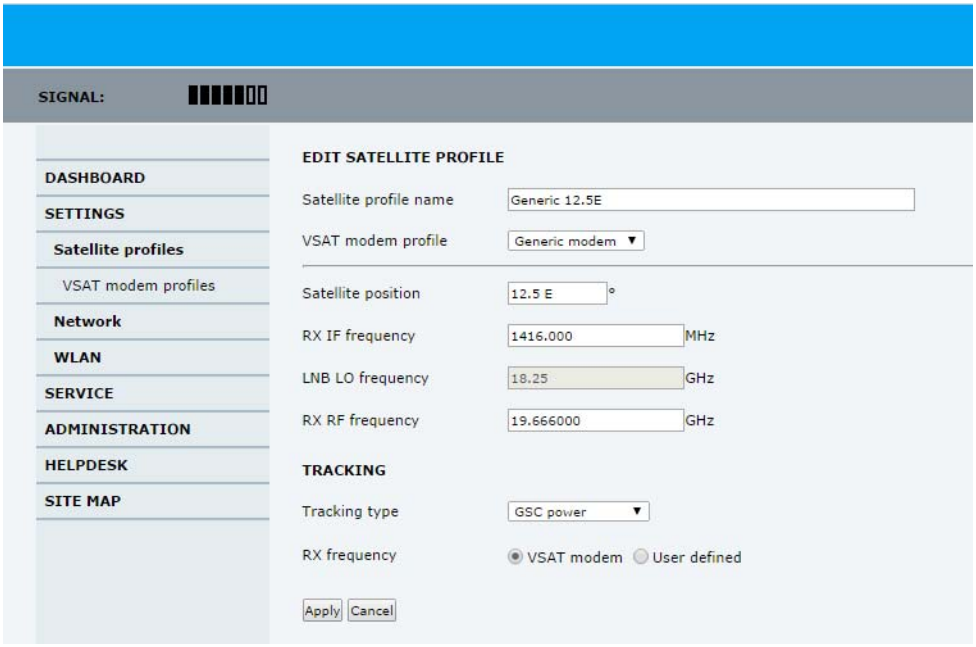


Figure 5-8: Satellite profile with generic GX modem

5.1.6 GX Modem: One Touch Commissioning

In some cases you may have to make the One Touch Commissioning for the modem.

WARNING! For your safety: Active RF transmission may occur during an OTC procedure. Software updates may also occur, yet the system is in receive-only mode during such auto-updates.

1. Connect a PC to LAN1.
2. Enter the web interface (via Firefox browser) and go to **SETTINGS > Network**.

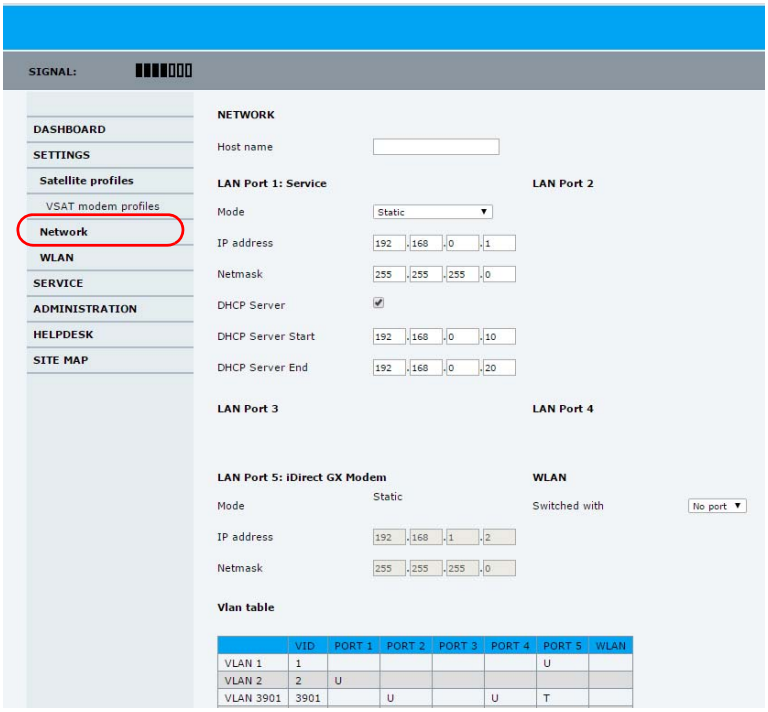


Figure 5-9: Setup for One-touch commissioning

3. Under **LAN Port 1:Service**, select **Switched with port 5** from the **Mode** drop-down list to be able to access the modem via Port 1.
4. Set the IP address of the PC to 192.168.1.10.
5. Open a Firefox Internet browser and connect to the Core Module Unified Web interface, type http://192.168.1.1.
6. The Core Module Unified Web interface of the GX modem will ask for the default User Name and Password. The modem (iDirect Core Module) will know that One Touch Commissioning has not yet occurred on this terminal.
7. Find the menu for One Touch Commissioning and start it.
   Once commissioning is completed the antenna will search for the I5 satellite with the highest elevation. The antenna will find the satellite and the modem with the core module will perform necessary steps to enter the network (SW upgrades).
8. The Unified Web Interface of the Core Module will indicate the modem in the network as well as the modem status in the display in the menu **MODEM**.
9. When commissioning is completed, test all subscribed services.

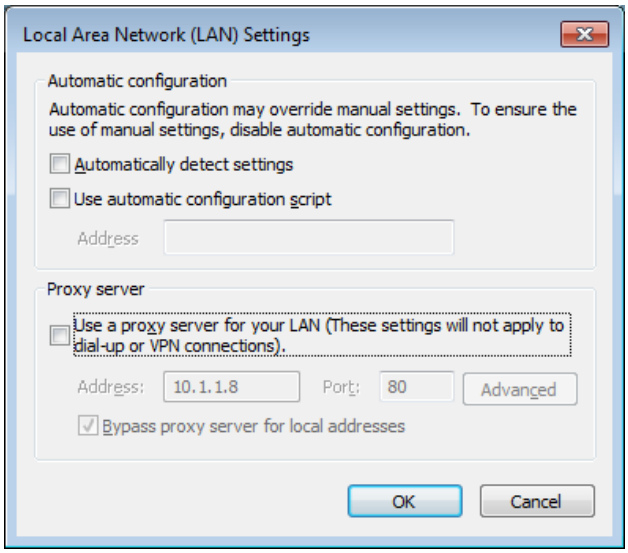
5.1.7 Proxy server settings in your browser

If you are connecting your computer using a LAN or WLAN interface, the **Proxy server** settings in your browser must be disabled before accessing the web interface. Most browsers support disabling of the Proxy server settings for one specific IP address, so you can disable Proxy server settings for the web interface only, if you wish. Consult your browser help for information.

To disable the use of a Proxy server completely, do as follows:

Note The following description is for **Microsoft Internet Explorer**. If you are using a different browser, the procedure may be different.

1. In Microsoft Internet Explorer, select **Tools > Internet Options > Connections > LAN Settings**.


Local Area Network (LAN) Settings
Automatic configuration
Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
Automatically detect settings
Use automatic configuration script
Address
Proxy server
Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).
Address: 10.1.1.8
Port: 80
Advanced
Bypass proxy server for local addresses
OK
Cancel

2. Clear the box labeled **Use a proxy server for your LAN**.
3. Click **OK**.

When the proxy server settings are disabled, close and restart your browser. You may need to change this setting back on return to your Internet connection.

5.2 Software update

5.2.1 Prerequisites

The following items are required to make a software update:

- One computer with a standard Ethernet port available.
- A standard Internet browser.
- 1024×768 pixels or higher display resolution (best viewed with small fonts).
- One straight LAN cable.
- Access to the file with the new software.

5.2.2 Software update procedure

EXPLORER 5075GX without GX modem

Note | Software update should only be done by qualified service personnel.

1. Power up the EXPLORER 5075GX system, i.e. switch on the ACU.
2. Connect a PC to LAN interface 1 (Service port, standard Ethernet).

   If you want to use another LAN port to access the web interface you must configure it according to your network requirements. See *To configure the LAN network* on page 4-6 for more information.
3. Open your Internet browser and enter the IP address of the EXPLORER 5075GX. The default IP address is http://192.168.1.2.
4. Type in the user name **admin** and the password **1234** to access the **Dashboard**.
5. The web interface shows the **DASHBOARD** page.
6. Click **SERVICE** in the navigation pane. The **UPLOAD SOFTWARE TO TERMINAL** page is displayed.

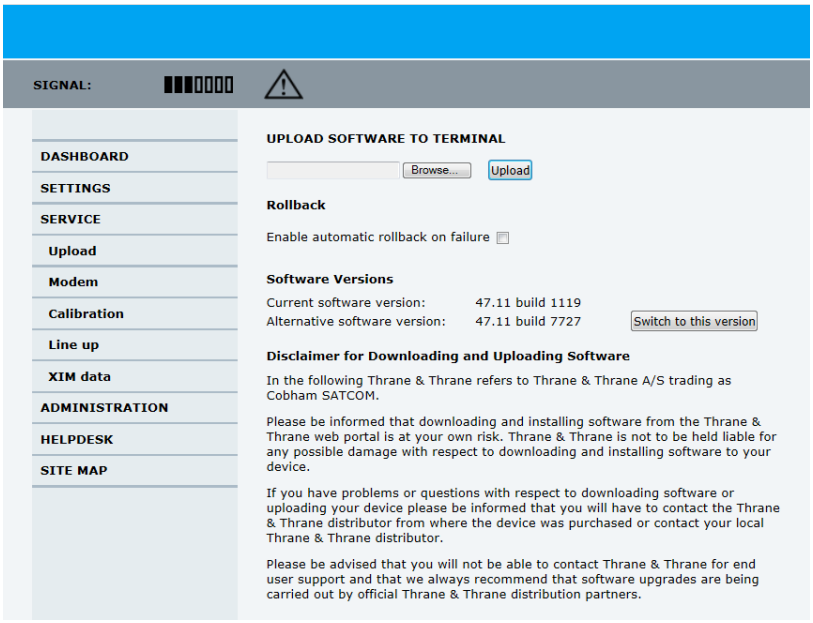

SIGNAL:
DASHBOARD
SETTINGS
SERVICE
Upload
Modem
Calibration
Line up
XIM data
ADMINISTRATION
HELPDESK
SITE MAP
UPLOAD SOFTWARE TO TERMINAL
Browse...
Upload
Rollback
Enable automatic rollback on failure
Software Versions
Current software version: 47.11 build 1119
Alternative software version: 47.11 build 7727
Switch to this version
Disclaimer for Downloading and Uploading Software
In the following Thrane & Thrane refers to Thrane & Thrane A/S trading as Cobham SATCOM.
Please be informed that downloading and installing software from the Thrane & Thrane web portal is at your own risk. Thrane & Thrane is not to be held liable for any possible damage with respect to downloading and installing software to your device.
If you have problems or questions with respect to downloading software or uploading your device please be informed that you will have to contact the Thrane & Thrane distributor from where the device was purchased or contact your local Thrane & Thrane distributor.
Please be advised that you will not be able to contact Thrane & Thrane for end user support and that we always recommend that software upgrades are being carried out by official Thrane & Thrane distribution partners.

Figure 5-10: Software update with the web interface

7. Click **Browse...** and locate the new software file.
8. Click **Upload**.

Important Do not browse away from the upload page. This will terminate the upload process. Wait for the browser to reload automatically.

9. You can select **Enable automatic rollback on failure**, then the system returns to the previous software if the installed software fails.
10. Click **Switch to this version** if you want to force the system to use the alternative software version stated in the display.
    Note that the upload procedure takes a couple of minutes. When done, the ACU automatically restarts with the new software version.
    The start-up procedure after a software upload takes longer than the usual start-up time, as the software in the antenna must also be updated. The display shows: **ANTENNA SW UPLOAD**.

If software upload fails - how to recover

To recover from a failed software upload, turn off the ACU and turn it on again. Then repeat the upload procedure as described in *Software update* on page 5-9.

To verify the software update

1. The software version can be viewed in the **DASHBOARD** window of the web interface.
2. After completing the software update procedure, the EXPLORER 5075GX will perform a POST (Power On Self Test).
3. When the POST has finished, the green Pass/Fail LED on the keypad must become steadily green. Verify that the Pass/Fail LED is not red nor flashing orange once every 2 seconds. Wait until the Pass/Fail LED is green.

4. Verify that the software update has been completed successfully. You find the software version number in the **DASHBOARD** window of the web interface.

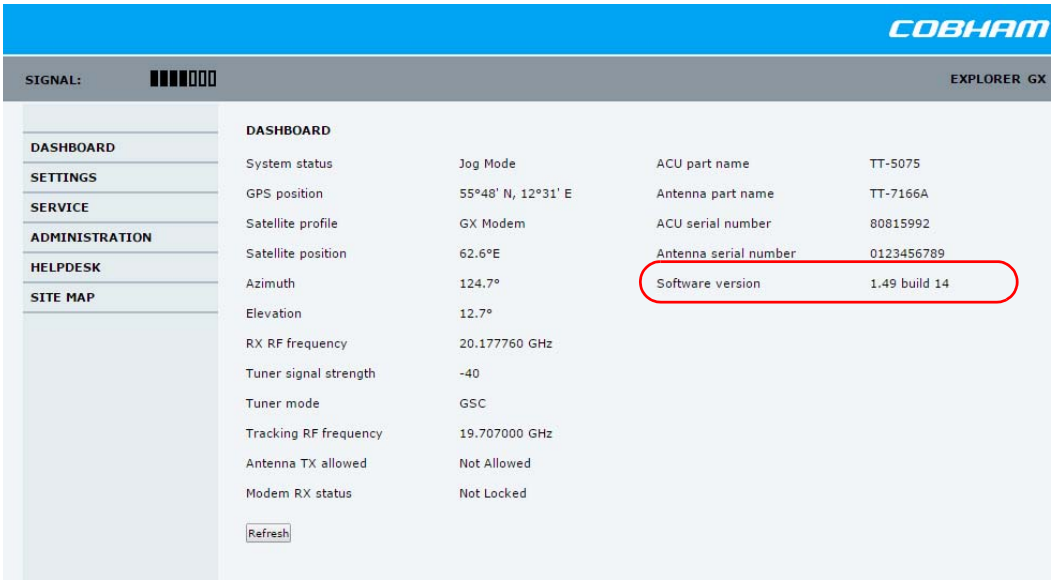


Figure 5-11: Verifying software update, SAILOR 900 VSAT

Software update (modem)

The modem detects automatically whether a software upgrade is needed. If yes, software upgrade is done automatically via the satellite link. You can see the current software version in the web interface of the GX modem (Core Module).

5.3 Status signalling with LEDs and status messages

Built-In Test Equipment

The EXPLORER 5075GX has a Built-In Test Equipment (BITE) function in order to make fault diagnostics easy during service and installation. The BITE test is performed during:

- Power On Self Test (POST), which is automatically performed each time the system is powered on.
- Person Activated Self Test (PAST), which is initiated by starting a self test in the web interface **HELPDESK > Self test**.

For details on error messages after a POST or a self test see *Event list* on page 5-3.

Means of signalling

The EXPLORER 5075GX provides various methods for signalling the system status. **LEDs** on the front panel of the ACU are used to signal:

- Power on/off
- Logon
- Fail/Pass

The built-in web interface of the ACU shows any events (BITE error codes) with a short message describing each error. This is also displayed in the ACU.

In an error situation, one of the following system status messages may be shown:

- ACU POST error
- ADU POST error
- SAFE MODE (plus information about the specific error, see *System messages* on page B-1).

5.3.1 LEDs on the keypad of the EXPLORER 5075GX

There are 3 LEDs: Power, Logon and Fail/Pass LED.

LED	Behaviour	Description
Power	Steady green	Power supply OK
	Steady red	Power supply failure
	Off	No power
Logon	Flashing green	Current status is displayed: • Searching satellite • Identifying satellite • Carrier lock & TX enabled from modem
	Steady green	Satellite link established
	Off	No satellite link acquired

Table 5-1: LEDs on the ACU

LED	Behaviour	Description
Fail/Pass LED	Steady red	A fault which prevents operation is present in the system (ACU, ADU, MODEM).
	Flashing green	A Power On Self Test (POST) or Person Activated Self Test (PAST) in progress. The current status is displayed.
	Flashing red	Active BITE failure or warning. The event is shown in the ACU display.
	Steady green	No faults.

Table 5-1: LEDs on the ACU (Continued)

5.3.2 Status information of the modem

The modem status is shown in the display of the EXPLORER 5075GX in the menu **Modem** and also in short form in the upper status line. The current status is communicated by a text string: Steady green, red or yellow, or flashing green, red or yellow.

- NET LED
- STAT LED
- TX LED
- RX1 LED
- RX2 LED
- PWR LED
- TEMP LED
- FAN LED

5.4 To return units for repair

Should your Cobham SATCOM product fail, please contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the partner details on www.cobham.com/satcom where you also find the Cobham SATCOM Self Service Center web-portal, which may help you solve the problem.

Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair.

Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

Technical specifications

This appendix has the following sections:

- *Antenna characteristics*
- *Product Dimensions*

A.1 Antenna characteristics

Ka-Band	Receive	Transmit
Feed	2 Port Circular	
Frequency Range (GHz)	19.2 - 20.2	29 - 30
Gain (dBi ± 0.2)	41.0	44.5
Axial Ratio (dB)	≤ 1.5	≤ 1.0
Polarization	LHCP	RHCP
G/T - Comm @ 30˚ EL, Midband (dB/˚K)	17.3	
EIRP @ Midband (dBW)	51.5	
BUC power (P linear) (Watts)	5	

Reflector	
Size	75cm
Optics	Axis-Symmetric
Construction	4-Piece Segmented

Mechanical characteristics	
Axis Drive System	2-Axis Positioner
Mount Geometry	Elevation over Azimuth
Travel:-Azimuth	± 90˚ from stow position
Travel:-Elevation	4˚ to 83˚
Emergency Drive	Hand crank on Az & El

Power requirement
100-240VAC, 4A, 50/60Hz 150W (max)

Weights and measures	
Terminal	28.6 kg (63 lbs)
Transport inside 2 cases	<31.7 kg (<70 lbs) per case, Airline checkable

Environmental characteristics	
Wind Speed - Operational	48 km/h (30 mph) gusts up to 72 km/h (45 mph) (anchored)
Temperature - Operational	-25˚ to +55˚C (-13˚ to +131˚F)
Temperature - Survival	-40˚ to +80˚C (-40˚ to +176˚F)
Rain	<100 mm/hr
Humidity	0 to 100% (condensing)
IP Class	IPX5

A.2 Product Dimensions

The dimensions shown below reflect the space needed to accommodate the full range of motion in elevation and azimuth.

A.2.1 Side view

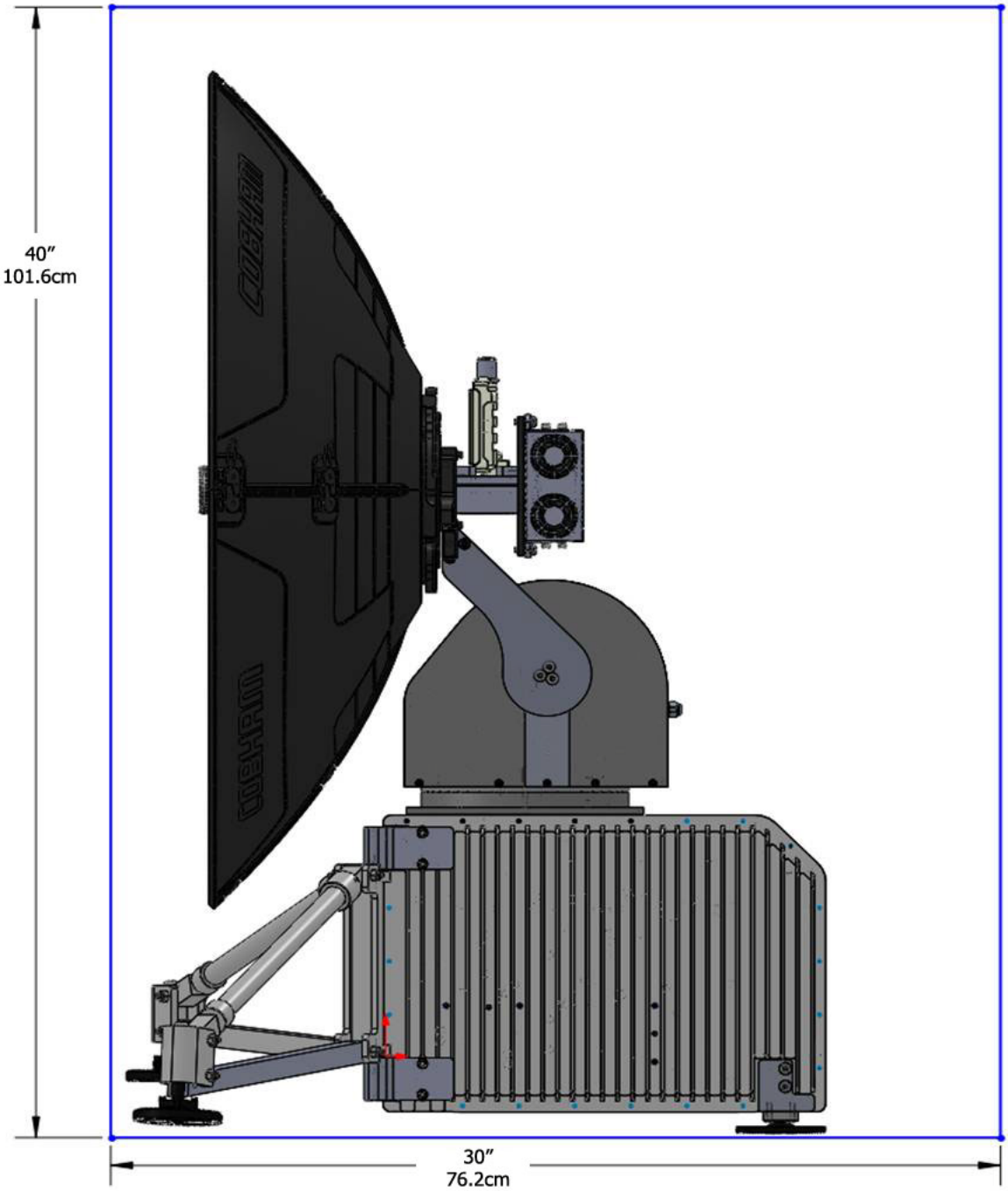


Figure A-1: EXPLORER 5075GX side view

A.2.2 Top view

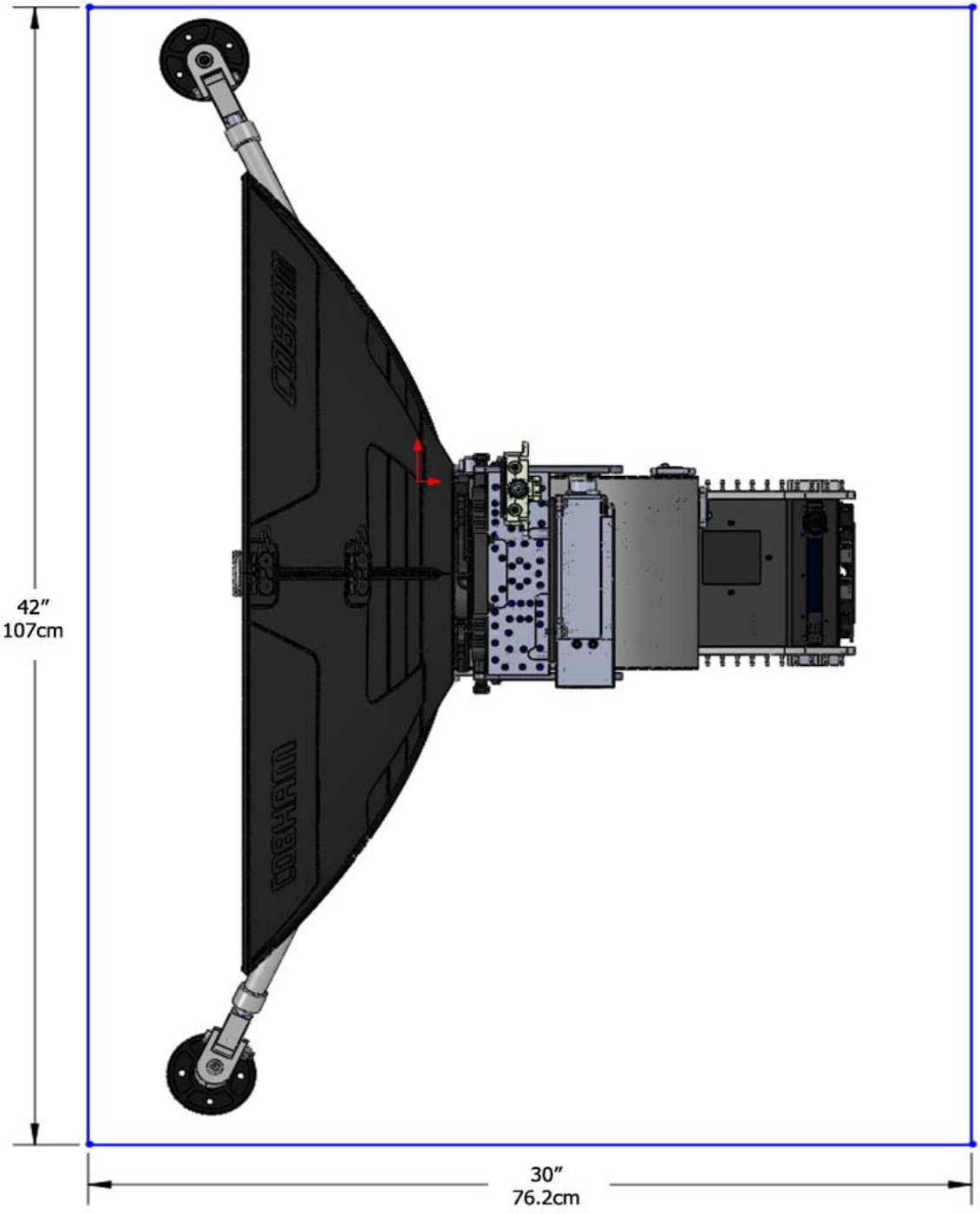


Figure A-2: EXPLORER 5075GX top view

A.2.3 Rear view

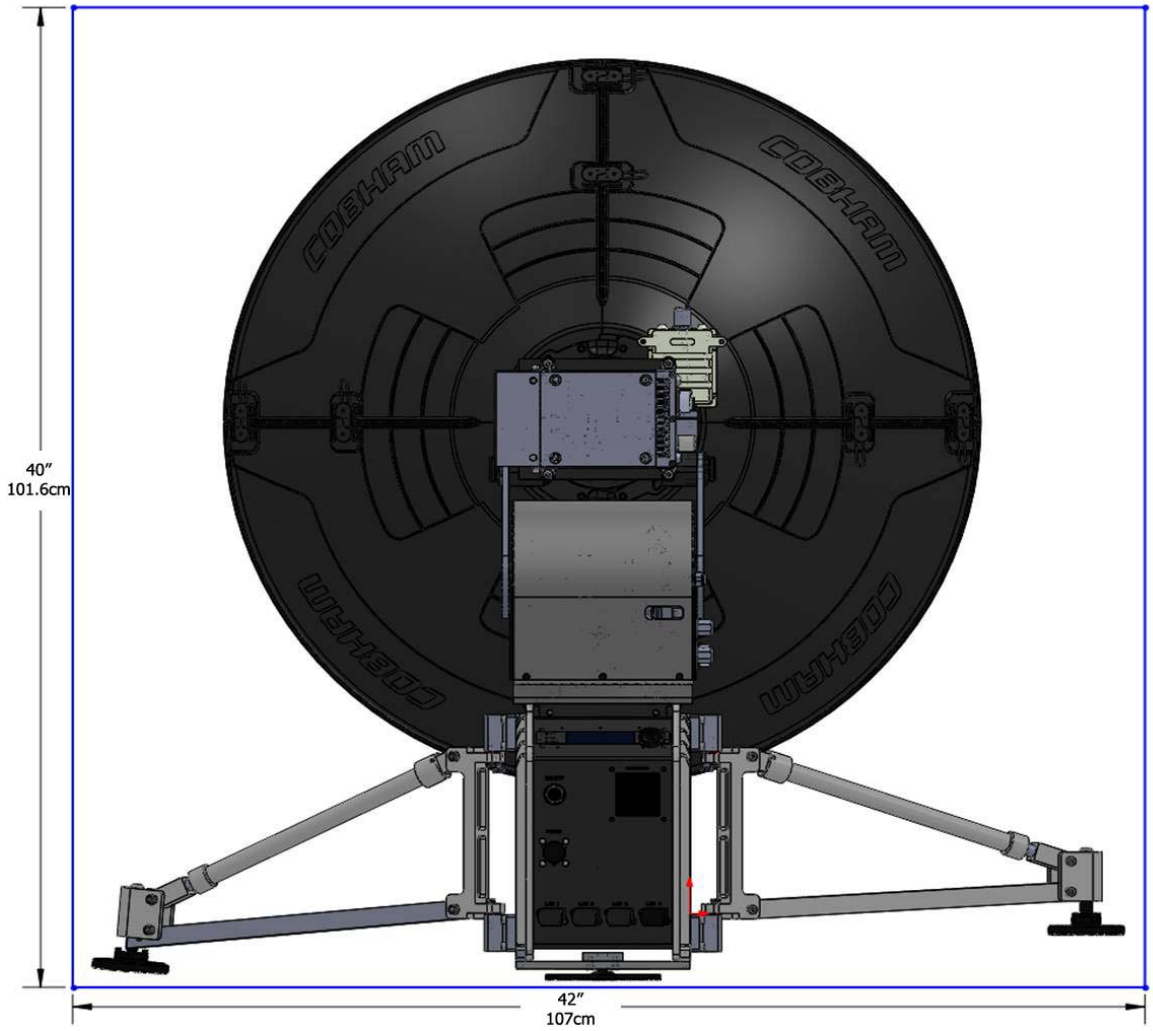


Figure A-3: EXPLORER 5075GX rear view

System messages

This appendix has the following sections:

- *Event messages – overview*
- *List of events*

B.1 Event messages – overview

The EXPLORER 5075GX detects events during

- POST (Power On Self Test) – a self test performed at every power-up.
- PAST (Person Activated Self test) – started in the web interface
- CM (Continuous Monitoring) – automatically performed while the system is in operation.

When the EXPLORER 5075GX detects an event that requires your action, it issues an event message and the red Fail/Pass LED in the LED panel of the ACU is lit. As long as an event is active, it is shown in the ACU displayControl Panel the web interface (in HELPDESK > Event list or click the event icon on the DASHBOARD).

Note Active events and notifications are shown. As soon as the event is cleared, it is not displayed any longer. It is then moved to the Notifications section. Notifications are cleared after 24 hours.

State the Event ID when contacting your service partner.

The event description might contain a number of digits in brackets, e.g. (00000005). This is supplemental information and used for service and diagnostics purposes.

B.2 List of events

Error code (ID)	Severity	Description	Explanation
08065-0	WARNING	GNSS data	Missing GPS data (fix).
08067-0	ERROR	PCB temperature	ADM temperature too high. The ACU is not equipped with a fan, so make sure there is compliance with the environmental specifications.
0806A-0	WARNING	VMU connection	The ACU has lost connection with the sat modem.
0806C-0	ERROR	VMU frequency setup	There is a mismatch in the frequency setup. Probably the sat modem is not configured correctly to match the requirements of the ACU and antenna. A common mismatch is the absence of Rx or Tx LO parameter in the VSAT modem.
0806E-0	ERROR	VMU 10 MHz reference	The VMU Rx or Tx reference signal is not present. Whether this error Rx or Tx reference, depends on the users selection on the modem profile page. Make sure VMU Rx/Tx cable is connected and that the VMU is configured to output the RX/TX reference signal.
08078-0	WARNING	VMU TX frequency invalid	VSAT modem unit provided a TX frequency of zero. This may degrade tx performance. To remove this warning re-configure the modem to provide the correct tx frequency.
08107-0	ERROR	ADM FPGA load	The ADM FPGA cannot be initialised and loaded.
0810A-0	ERROR	ADM production data	Production data has been corrupted.
0810C-0	ERROR	File system integrity	One or more file system partitions are corrupt. You may have lost your settings and collected statistics. If restarting the system does not help, contact your service partner.
0810D-0	ERROR	Antenna communication	Link to the ACU could not be established. Either the ACU is malfunctioning, or - if the system software has just been updated - the software is too old and is not compatible with the ACU hardware.
08800-0	ERROR	Internal power supply	An internal power supply voltage is outside its legal range.
08840-0	WARNING	Master PLL lock	The master PLL has lost lock. Check the input reference signal.
08841-0	ERROR	Tuner lock	The internal tuner PLL was unable to lock.
08842-0	WARNING	GSC demodulator	The GSC demodulator has reported an error.
08843-0	WARNING	DVBS demodulator	The DVBS demodulator cannot be initialised and loaded correctly.

Table B-1: Event messages

Error code (ID)	Severity	Description	Explanation
08844-0	WARNING	BUC voltage	The BUC voltage is out of range.
08845-0	WARNING	LNB voltage	The LNB voltage is out of range. The LNB might be switched off to protect the power supply circuitry. Reactivate satellite profile to try again, check LNB cable and surroundings if the problem persists.
08880-0	ERROR	WLAN configuration error	Configuration of WLAN module failed.
08A00-0	WARNING	GX Core Module fan	There is a problem with the Core Module fan. Check/clean and replace if necessary.
08A01-0	WARNING	GX Core Module heater	There is a problem with the Core Module heater. Check and replace if necessary.
08A02-0	WARNING	GX Core Module temperature	The Core Module temperature is out of range. It may affect performance, and it will be shut down if the situation gets worse.
08A03-0	ERROR	GX Core Module	The ACU detected a warning/error in the GX Core Module. Info: 0x00000001: Power supply error 0x00000002: Test error
09000-0	ERROR	KDM 3V3 supply	Internal 3V3 voltage supply error in the KDM.
09001-0	ERROR	KDM 12V supply	Internal 12V voltage supply error in the KDM.
09002-0	ERROR	KDM display	Display hardware error in the KDM.
09010-0	ERROR	KDM link/SW version	Link to the KDM module could not be established. Either the KDM board is malfunctioning, or - if the system software has just been updated - the software is too old and is not compatible with the KDM hardware.

Table B-1: Event messages (Continued)

Event ID	Severity	Description	Explanation
0C001	Error	Compass/dish	Not seeing the compass
0C002	Error	GNSS position/velocity	Not detecting any GPS satellite
0C003	Error	Base angle level	Antenna base angle exceeds 8˚. Level the antenna
0C005	Error	AZ major over travel	Antenna has been driven beyond the azimuth electrical limit
0C006	Warning	AZ over travel	Antenna has reached the electrical limit
0C007	Error	SNR communication	SSI values are not being received
0C008	Warning	EL over travel	Antenna has reached the electrical limit
0C009	Error	AZ motor movement	Not detecting any azimuth motor movement
0C010	Error	EL motor movement	Not detecting any elevation motor movement
0C011	Error	Low elevation	Antenna is reporting low elevation fault
0C013	Error	No transponder found	The acquisition algorithm could not identify a transponder

Table B-2: Event messages of antenna

Approvals

This appendix lists the approvals for EXPLORER 5075GX.

C.1 EN 301 489-1 V1.9.2 (2011-09)

BACL
Bay Area Compliance Labs Corp.

Bay Area Compliance Laboratories Corp.
1274 Anvilwood Ave., Sunnyvale, CA 94089, USA
Phone: (408) 732-9162, Fax: (408) 732-9164
www.baclcorp.com

ATTESTATION OF CONFORMITY

Date of Issue: 2014-10-23 Attestation Number:R1408202

Bay Area Compliance Laboratories Corp. (BACL) hereby declares that testing has been completed and reports have been generated for;

Product: **VSAT Terminal**

Model: **EXPLORER 5075GX**

Applicant: **TracStar Systems dba Cohbam SATCOM**
1551 College Park Business Center Road
Orlando, FL 32804, USA

That this product has been assessed and found to comply against the following Standards;

EN 301 489-1 V1.9.2 (2011-09), EN 301 489-12 V2.2.2 (2008-07)
EN 301 360 V1.2.1 (2006-02)
EN 303 978 V1.1.2 (2013-02)

Application of the CE Mark is permitted only after all applicable requirements are met in accordance with the European Union Rules, including the manufacturer's issuance of a "Declaration of Conformity."

This attestation is specific to the standard(s) stated above and compliance with additional standards and/or directives may be required.

Attestation by: John Chan
Certification Manager

Signature

2014-10-23
Date

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CI012-G

C.2 AS/NZS 22:2009 + A1:20110

DECLARATION OF CONFORMITY

This product was found to be compliant with AS/NZS CISPR 22:2009 + A1:2010 for Information Technology Equipment.

Supplier Information	
Model:	EXPLORER 5075GX
Responsible Party:	TracStar Systems dba Cobham SATCOM
Address:	1551 College Park Business Center Road Orlando, FL 32804, USA
Contact Person:	George Tong
Telephone:	(517) 673-8007
Email:	George.Tong@cobham.com

EUT Information Summary	
Product Type:	VSAT Terminal
Report Number:	R1408202
Issuance Date:	2014-10-24
Tested by:	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave., Sunnyvale, CA 94089, USA Phone: (408) 732-9162, Fax: (408) 732-9164 www.baclcorp.com

TracStar Systems dba Cobham SATCOM

being the responsible party, declares that the product

EXPLORER 5075GX

was tested to demonstrate compliance with AS/NZS CISPR 22 Rules and regulations. The methods of testing were in accordance with the most current and accurate measurement standards possible. All necessary steps have been taken in order to assure that all production units will continue to comply with AS/NZS CISPR 22 requirements.

Signature

Oct 24, 2014
Date

GEORGE TONG
Name

DIRECTOR ENGINEERING
Title

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C.3 FCC Part 15 and ICES-003

DECLARATION OF CONFORMITY

The device submitted for testing at Bay Area Compliance Laboratories Corp. was found to be compliant with FCC Part 15 and ICES-003 Rules and Regulations for Information Technology Equipment.

Supplier Information	
Model:	EXPLORER 5075GX
Responsible Party:	TracStar Systems dba Cobham SATCOM
Address:	1551 College Park Business Center Road Orlando, FL 32804, USA
Contact Person:	George Tong
Telephone:	(517) 673-8007

EUT Information Summary	
Equipment Class:	Class B
Product Type:	VSAT Terminal
Report Number:	R1408202
Issuance Date:	2014-10-23
Tested by:	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave., Sunnyvale, CA 94089, USA Phone: (408) 732-9162, Fax: (408) 732-9164 www.baclcorp.com

TracStar Systems dba Cobham SATCOM

being the responsible party, declares that the product

EXPLORER 5075GX

was tested to demonstrate compliance with all applicable FCC and IC Rules and regulations. The methods of testing were in accordance with the most current and accurate measurement standards possible. All necessary steps have been taken in order to assure that all production units will continue to comply with the Federal Communications Commission's requirements.

Signature

Oct 24, 2014
Date

GEORGE TONG
Name

DIRECTOR ENGINEERING
Title

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C1007-E

C.4 Part 15 of the FCC Rules

DECLARATION OF CONFORMITY

The device submitted for testing at Bay Area Compliance Laboratories Corp. was found to be compliant with Part 15 of the FCC Rules and Regulations for Information Technology Equipment.

Supplier Information	
Model:	EXPLORER 5075GX
Responsible Party:	TracStar Systems dba Cohbam SATCOM
Address:	1551 College Park Business Center Road Orlando, FL 32804, USA
Contact Person:	George Tong
Telephone:	(517) 673-8007

EUT Information Summary	
Equipment Class:	Class B
Product Type:	VSAT Terminal
Report Number:	R1408202
Issuance Date:	2014-10-23
Tested by:	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave., Sunnyvale, CA 94089, USA Phone: (408) 732-9162, Fax: (408) 732-9164 www.baclcorp.com

TracStar Systems dba Cohbam SATCOM

being the responsible party, declares that the product

EXPLORER 5075GX

was tested to demonstrate compliance with all applicable FCC Rules and regulations. The methods of testing were in accordance with the most current and accurate measurement standards possible. All necessary steps have been taken in order to assure that all production units will continue to comply with the Federal Communications Commission's requirements.

Signature

Oct 24, 2014
Date

GEORGE TONG
Name

DIRECTOR ENGINEERING
Title

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C1007-E

A

ABS	ADU Bus Slave
ADM	ACU Digital Module. A main processor board in the ACU.
AMB	Antenna Module Bus

B

BUC	Block Up Converter. The BUC can be thought of the “transmitter”, and its actions are effectively the direct opposite to the LNB. The BUC consists of the Up Converter and HPA.

C

CM	Continuous Monitoring

D

DVB	Digital Video Broadcasting, a set of standards relating to digital television.

F

FPGA	Field Programmable Gate Array

G

GNSS	Global Navigation Satellite System, e.g. GPS.
GPS	Global Positioning System. A system of satellites, computers, and receivers that is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver.
GX	Global Xpress, high-speed broadband network, a worldwide Ka-band mobile satellite system.

I

IFL	Inter-Facility Link
IMSO	International Mobile Satellite Organisation. An intergovernmental organisation that oversees certain public satellite safety and security communication services provided via the Inmarsat satellites.

IP	Internet Protocol. The method or protocol by which data is sent from one computer to another on the Internet.

K

KDM	Keyboard and Display Module of the ACU

L

LAN	Local Area Network
LED	Light Emitting Diode
LNB	Low Noise Block. A device used to amplify or boost the weak received signal without amplifying the noise signals (hence the “low noise” part of LNB) and to convert the high frequencies of the signal into lower frequencies, a process called down converting, for conveyance to the indoor equipment (demodulator) for processing.

P

PAST	Person Activated Self Test
POST	Power On Self Test. A system test that is activated each time the system is powered on.

R

RF	Radio Frequency. Electromagnetic wave frequencies between about 3 kHz and about 300 GHz including the frequencies used for communications signals (radio, television, cell-phone and satellite transmissions) or radar signals.

S

SSID	Service Set IDentifier. An SSID is the name of a wireless local area network (WLAN). All wireless devices on a WLAN must use the same SSID in order to communicate with each other.

A

access
limit, 4-14
acquisition
search pattern, 4-2
activation
service, 2-2
ACU display
description, 4-18
admin
password, 4-2
user name, 4-2
administration
settings, 4-12
administrator
log off, 4-13
logon, web interface, 4-12
password, 4-12
password, change, 4-13
password, reset, 4-13
antenna
anchor, 3-4
warnings, B-4
antenna errors, B-4
antenna positioner, 2-3
approvals
AS/NZS 22:2009 + A1:20110, C-2
EN 301 489-1 V1.9.2 (2011-09), C-1
FCC Part 15 and ICES-003, C-3
Part 15 of the FCC Rules, C-4
auto-acquisition, 3-7

B

BITE test, 5-12
Broadcast SSID, 4-9
browser settings
for web interface, 5-7

C

cable
calibration data reset, 4-16
cables, 3-2
connect, 3-5
calibration
satellite data, 5-5
calibration data, 4-16
reset, 4-16
center hub
panels, 3-5
change administrator password, 4-13
change network setting, 4-14
configuration
copy, 4-15
export, 4-15
import, 4-15
LAN network, 4-6
site map, 4-3
step-by-step, 4-1
Configuration program, 4-1
connect
cables, 3-5
web interface, 4-1
contact information, 5-1
core module
web interface, 5-7
Country
selecting for WLAN, 4-9

D

default
reset to factory settings, 4-16
deploy, 4-14
hand crank, 5-3
web interface, 4-10
DHCP client, 4-8
DHCP server, 4-8
diagnostic report, 5-2
display
ACU, description, 4-18
description, 2-5

E

encryption key, 4-9
WLAN, 4-9
error codes, B-1
error messages, 5-3, B-1, B-2

errors
antenna, B-4
events, B-1, B-2
antenna, B-4
list of active, 5-3
export configuration, 4-15

F

factory default
calibration data, 4-16
reset, 4-16
factory defaults
reset to, 5-4, 5-5
firewall, 4-6
fixed position, 4-11

G

guest
password, 4-2
permissions, 4-14
user name, 4-2
guest login, 4-2, 4-14
GX modem
generic, 5-6
GX service
data rates, 2-2

H

hand crank
degree per turn, 5-3
host name, 4-4, 4-6
hub latches, 2-4

I

import configuration, 4-15
IP address
for web interface, 4-1, 5-9
static, 4-8
IP rating, 2-3

J

jog, 4-14
web interface, 4-10

K

keypad
description, 2-5

L

LAN
network setup, 4-6
LAN configuration
DHCP client, 4-8
LAN network
configuration, 4-6
LED, 5-12
limit access to web interface, 4-14
LO frequencies, 4-18
load
configuration, 4-15
log off
administrator, 4-13
login
guest, 4-14
web interface, 4-2
logon
administrator, web interface, 4-12

M

messages, B-1
microwave radiation, -iii
modem
reset, 4-14

N

navigation, 4-4
navigation in web interface, 4-5
network
LAN setup, 4-6
notifications, 5-3

O

One Touch Commissioning, 5-7
orientation, 3-2

P

panels
  attach to center hub, 3-5
password
  administrator, 4-12
  change, 4-13
PAST, 5-12
permissions
  user, 4-14
Person Activated Self Test, 5-12
position
  fixed, 4-11
POST, 5-12
Power On Self Test, 5-12
power supply, 2-6
protect access to settings, 4-14
Proxy server, disabling, 5-7

R

radiation, -iii
recover
  software update, 5-10
reflector, 2-3
  weight, 2-3
reset, 5-4, 5-5
  factory default, 4-16
  password, 4-13
reset administrator password, 4-13
reset keys on ACU, 5-4
RF assembly, 2-3

S

safety summary, -iii
satellite data
  calibration, 5-5
save
  configuration, 4-15
security
  WLAN, 4-9
security key
  wireless network, 4-9
self test, 5-3
service activation, 2-2
service port
  IP address, 4-1
setup
  user permissions, 4-14
site map, 4-3
software update, 5-9
  recover, 5-10
software version, 1-1
  verify, 5-11
specifications, A-1
SSID, 4-9
static IP, 4-1
static IP address, 4-8
status messages, 5-12
stop, 4-14
  antenna, web interface, 4-10
stow, 4-14
  antenna, 3-7
  web interface, 4-10
support
  contact information, 5-1
support legs, 2-4, 3-4
system
  ACU reset, keys to press, 5-4
system configuration
  copy, 4-15
System messages, B-1

T

technical data, A-1
troubleshooting
  diagnostic report, 5-2

U

updating software, 5-9
upload
  configuration, 4-15
user permissions, 4-14
  setup, 4-14

V

VLAN port membership table, 4-8

W

warning messages, B-1
warnings, 5-3, B-2
  antenna, B-4
warranty, 5-14
web interface
  browser settings, 5-7
  connect, 4-1
  connection, 3-6
  core module, 5-7
  login, 4-2
  navigating, 4-5
  overview, 2-5
Wifi
  encryption key, 4-9
  name, 4-9
wireless local area network
  name, 4-9
WLAN
  country code, 4-9
  encryption key, 4-9
  security, 4-9
  setup, 4-8
WLAN access point
  setup, 4-9